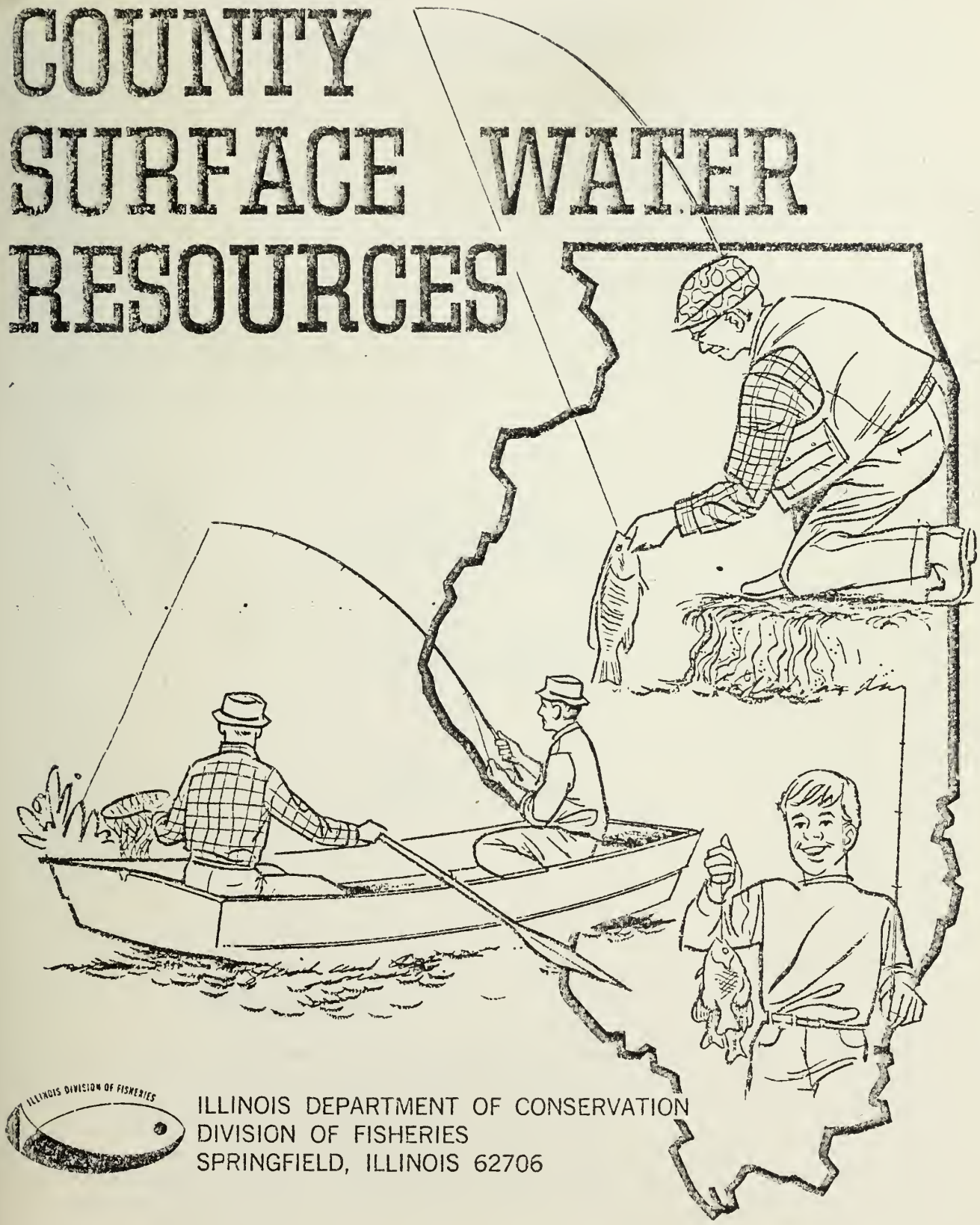
MARION COUNTY SURFACE WATER RESOURCES



ILLINOIS DEPARTMENT OF CONSERVATION
DIVISION OF FISHERIES
SPRINGFIELD, ILLINOIS 62706

ACKNOWLEDGEMENTS

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ILLINOIS DEPARTMENT OF CONSERVATION
DIVISION OF FISHERIES

MARION COUNTY
SURFACE WATER RESOURCES

BY

RAYMOND E. FISHER
FISHERY BIOLOGIST

AND

HARVEY P. BROWN
FISHERY BIOLOGIST

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PREFACE

The higher standard of living enjoyed today by Illinois citizens has resulted in an increased amount of leisure time to pursue outdoor recreation. There has been an increased interest in boating, sailing, canoeing, water-skiing, fishing, skin diving, and other water associated sports. Demands by industry, agriculture and urban expansion have also placed heavy burdens on surface waters. It is time to take stock of our existing and potential resources and problems to plan for the future.

A county water resource report, such as this one, is an attempt by the Division of Fisheries of the Illinois Department of Conservation to summarize data on the more important existing water resources and their recreational value. With this data available, a method to apportion usage of water in the best interest of the public can be determined together with the potential needs.

This inventory is an extensive survey of the surface water resources and related items in Marion County. Emphasis has been placed on the areas of greatest use and recreational value. The information provided in this report has been obtained from past records on file in the Illinois Department of Conservation, other conservation agencies, and data collected by fishery biologists and fish conservation agents.

In 1964, with the publication of "Illinois Surface Water Inventory", the Division of Fisheries provided the state with the first statistical summary of surface water resources. This was a compilation of waters in each county with no evaluation as to their use. In order to have more complete data available for planning, the Division of Fisheries inaugurated a program in 1966 whereby detailed water resource reports were to be prepared for each of the 102 counties in Illinois.

These reports should assist in long-range planning and development of the states water resources to meet the needs of the future.

A. C. Lopinot
Chief Fishery Biologist

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ABSTRACT

Marion County is 370,560 acres in size. The city of Salem (6,165 population) is the county seat. Presently the estimated population of Marion County is 38,600 people.

Marion County is primarily an agricultural county with a climate and soils favorable for crops such as corn, soybeans, and wheat. January is the coldest month with an average temperature of 33.3 degrees Fahrenheit and July is the warmest with an average temperature of 79 degrees Fahrenheit.

There are currently 1,534 artificial impoundments comprising a total of 2,950 surface acres of water in the county. Approximately 22 percent of the water acreage is classified as ponds (under 6.0 acres in size). There are 19 areas which are classified as either "Public", or "Organizational" waters totaling 2,210.36 surface acres. There is one major stream in the county, Skillet Fork Creek, considered as having a fishing resource. It comprises a total of 44 surface acres or 25 stream miles within the county.

Many potential pond but fewer lake sites exist in the county. There are fewer lake sites which will impound over 100 acres of water.

Fishing in the county is limited to aforementioned lakes, streams and ponds. The principal sport fishery includes the largemouth bass, bluegill and channel catfish. Also of interest to the fishermen are commercial species such as carp, bullheads, catfish and freshwater drum. Fishing is undertaken from early spring through late fall (March to November). The potential of ice fishing exists for a short time in January; however, little ice fishing is undertaken.

For the hunter, the county is noted for small game hunting such as quail, rabbit and squirrel.

Camping and boating are related to fishing and hunting and are centered around the lakes, streams and ponds of the county.

The future of Marion County will remain agricultural in nature. There are not sufficient outdoor recreation facilities to meet the current demand and in time this need may become critical.

GENERAL SETTING OF THE WATERS OF MARION COUNTY

Marion County is located in the northwest section of southeastern Illinois (Figure 1). The county is approximately 24 miles long by 24 miles wide and consists of 17 townships; comprising an area of 561 square miles or 370,560 acres. Marion was created January 24, 1823, from parts of Fayette and Jefferson counties. The county was named for Francis Marion (1732-95), who was called Swamp Fox, because of the guerrilla tactics he used in the Revolutionary War (Clayton, 1968).

Farming is basic to the economic structure of the county. About 290,665 acres of Marion is farmland. A break down of land usage is cropland 224,146 acres, pasture land 26,677 acres, woodland 32,417 acres, and other land (which includes house lots, roads, etc.) 34,102 acres.

Agricultural production during 1964 is estimated to have exceeded $10,346,614; the major portion derived from the sale of field crops and livestock. Approximately 80 percent of the land is in farms which average 184 acres in size. There are 1,586 farms in the county.

In 1955 Marion County oil production increased, but the county had the biggest decrease in drilling for any county in the state. Prior to this time Marion ranked among the leading counties in annual oil production. Marion County at this time ranks first in the total production (Bell and Kline, 1955).

Transportation through the county in a north-south direction is by Illinois State Route 37 which connects Mt. Vernon in Jefferson County, with Salem in Marion County and Effingham in Effingham County. United States Route 51 runs along the western edge of the county linking Irvington, Jefferson County, with Centralia, Marion County, and Vandalia in Fayette County. U. S. Route 50 runs east and west connecting Flora, Clay County, with Salem and Carlyle in Clinton County. Illinois Route 161 runs due east of Centralia terminating at Route 37 in the lower southwest portion of the county. Railroad travel is northeasterly via the Illinois Central running through Odin and Kinmundy and the Chicago Eastern which runs north and south through Kell, Salem and Kinmundy. East-west travel is by the Baltimore and Ohio running through Odin and Salem.

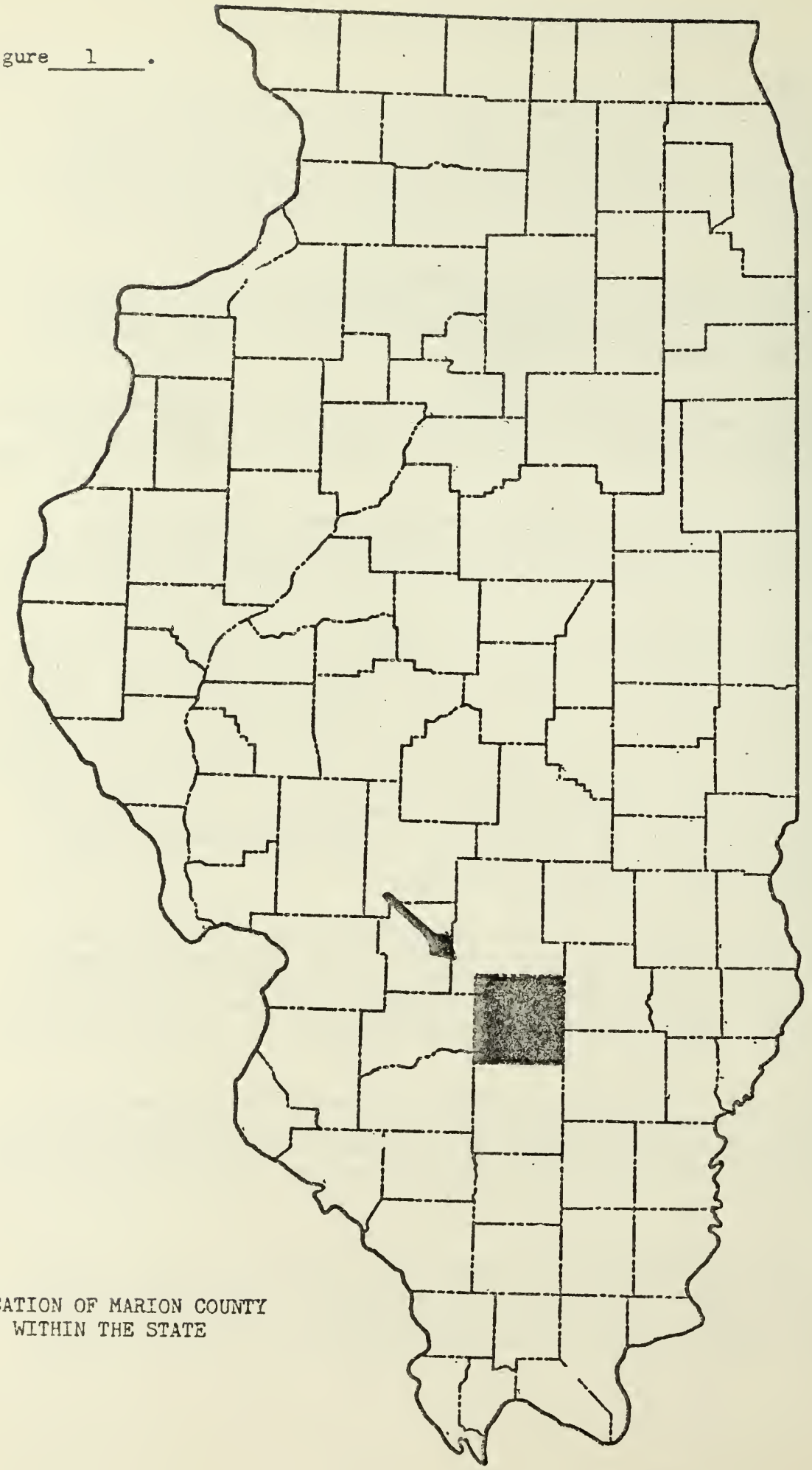
Projected data from the 1960 census to the 1967 census places the county population at 38,600 persons. Salem is the county seat, incorporated February 10, 1837, with a population of 6,165. Centralia is the largest community in the county with a population of 13,904. Other villages and communities of notable size include Vernon (235), Patoka (601), Sandoval(1,356), Odin (1,242), Kell(194), Alma (358), Kinmundy (813), and Iuka (378).

The climate is usually mild with a relatively long growing season. In the summer months the temperature ranges between 65 to 95 degrees Fahrenheit and from 30 to 42 degrees in the winter months. It is seldom hotter than 98 to 100 degrees during the summer or colder than 5 to 6 degrees below zero during the winter months.

PHYSIOGRAPHY

Marion is divided between two physiographic divisions of Illinois. A line extended diagonally from the northeast to the southwest corner of the county places the eastern portion in the Mt. Vernon Hill County of the Central Lowland Province. The western one-half is in the Springfield Plain of the Till Plains

Figure 1.



LOCATION OF MARION COUNTY
WITHIN THE STATE

SECTION OF ILLINOIS. THE TOPOGRAPHY OF MARION IS CHARACTERIZED BY THE GENTLY UNDULATING UPLANDS OF THE CENTRAL AND WESTERN PORTIONS OF THE COUNTY. THE EASTERN AND SOUTHERN PORTIONS OF THE COUNTY IS HILLY WITH COMPARATIVE NARROW CREEK BOTTOMS.

THE AVERAGE LAND SLOPE OF MARION COUNTY IS 4.62 PERCENT - A VERTICAL CHANGE OF 4.62 FEET IN EACH 100 FEET OF DISTANCE. THERE ARE NO PARTICULARLY HIGH BLUFFS IN THE COUNTY. THE GENERAL ELEVATION OF THE COUNTY IS HIGHEST TOWARD THE NORTHERN EXTREMITIES OF THE COUNTY; ALMOST 580 FEET ABOVE MEAN SEA LEVEL. THE MINIMUM ELEVATION AT THE LOWER PORTION OF THE COUNTY IS NEAR 450 FEET ABOVE MEAN SEA LEVEL. THE GENERAL ELEVATION IS ABOUT 525 FEET ABOVE MEAN SEA LEVEL.

CLIMATE

MARION COUNTY HAS A CONTINENTAL CLIMATE, TYPICAL OF ILLINOIS, WHICH MEANS HOT SUMMERS AND COOL WINTERS (PAGE, 1949). THE AVERAGE JANUARY TEMPERATURE IS 33.3 DEGREES AND THE AVERAGE JULY TEMPERATURES IS 79 DEGREES. THE AVERAGE ANNUAL TEMPERATURE IS 56 DEGREES (FIGURE 2). CLIMATE DATA IS NOT SPECIFIC FOR RECORD DAYS; HOWEVER, THE ALL TIME HIGH FOR THIS AREA WAS RECORDED AT MT. VERNON, ILLINOIS (IN JEFFERSON COUNTY) DURING JULY, 1936, WHEN THE TEMPERATURE REACHED 116 DEGREES. THE MEAN JANUARY TEMPERATURE OF MARION COUNTY RANGES BETWEEN 32 AND 34 DEGREES.

WINDS OF MARION COUNTY ARE COMMONLY FROM THE SOUTHWEST DURING THE SUMMER AND NORTHWEST DURING THE WINTER (PAGE, 1949). A CHANGE IN WIND DIRECTION USUALLY AFFECTS THE TEMPERATURE AND MOISTURE CONDITIONS OF THE AIR.

THE MEAN ANNUAL RAINFALL AT SALEM IS 39.03 INCHES. APPROXIMATELY 60 PERCENT OF THE RAINFALL OCCURS DURING THE WARMER HALF OF THE YEAR (FIGURE 3). JUNE IS THE MONTH HAVING THE MOST PRECIPITATION (4.88 INCHES) AND OCTOBER HAS THE LEAST (2.97 INCHES). MOST MOISTURE, IN THE FORM OF SNOW, IS ACCUMULATED ANNUALLY FROM 14 TO 16 INCHES. SNOWFALL MAY OCCUR ANY TIME FROM OCTOBER THROUGH APRIL.

THE AVERAGE GROWING SEASON IS 190 DAYS IN LENGTH. THE AVERAGE DATE OF THE LAST KILLING FROST IN THE SPRING IS APRIL 16 AND THE AVERAGE DATE OF THE FIRST KILLING FROST IN THE FALL IS OCTOBER 20. FIGURE 3 PRESENTS THE AVERAGE MONTHLY RAINFALL AND FIGURE 4 THE AVERAGE MONTHLY SNOWFALL FOR MARION COUNTY. FIGURE 5 PRESENTS THE LONG-TERM MEAN ANNUAL PRECIPITATION FOR STATIONS IN AND NEAR MARION COUNTY.

GEOLOGY

MARION COUNTY LAYS TOWARD THE WESTERN EDGE OF A PROMINENT GEOLOGICAL STRUCTURE KNOWN AS THE ILLINOIS BASIN. WITHIN THIS BASIN THERE IS THE CENTRALIA AREA WHICH IS ABOUT 50 MILES EAST OF THE WEST MARGIN OF THE EASTERN INTERIOR BASIN. THE AREA IS BISECTED BY THE DUQUOIN MONOCLINE (BROWNFIELD, 1954). ITS WEST ONE-HALF STRUCTURALLY ABOVE THE MONOCLINE, IS ON THE SHELF PART OF THE EAST INTERIOR BASIN WHILE THE EAST ONE-HALF IS ON THE SLOPES OF THE DEEPER PORTION OF THE ILLINOIS BASIN.

THE MAJOR STRUCTURAL FEATURES INCLUDE REGIONAL DIPS AND THICKENING STRATA TO THE SOUTHEAST AND FAULTING DOWN TO THE WEST ALONG THE DUQUOIN MONOCLINE. THE OMEGA ANTICLINE COVERS AN AREA OF APPROXIMATELY 2 TOWNSHIPS EXTENDING FROM 3 MILES EAST OF KINMUNDY, WITH A SLIGHT BEND SOUTHWEST TO A POINT ABOUT 3 MILES SOUTHWEST OF OMEGA. THERE IS EVIDENCE OF TWO DOMES, ONE TO THE NORTH OF XENIA AND THE OTHER SOUTHWEST OF IOLA. BOTH DOMES APPEAR TO BE CONNECTED WITH THE OMEGA ANTICLINE.

A GENERAL STRATIGRAPHIC SECTION OF THE PENNSYLVANIAN SYSTEM TAKEN FROM THE KINMUNDY SHAFT, NE$\frac{1}{4}$, NW$\frac{1}{4}$, SEC. 23, T4N, R3E, IS AS FOLLOWS:

DAILY TEMPERATURES
Mt. Vernon, Nearest Reporting Station
(10 year period)

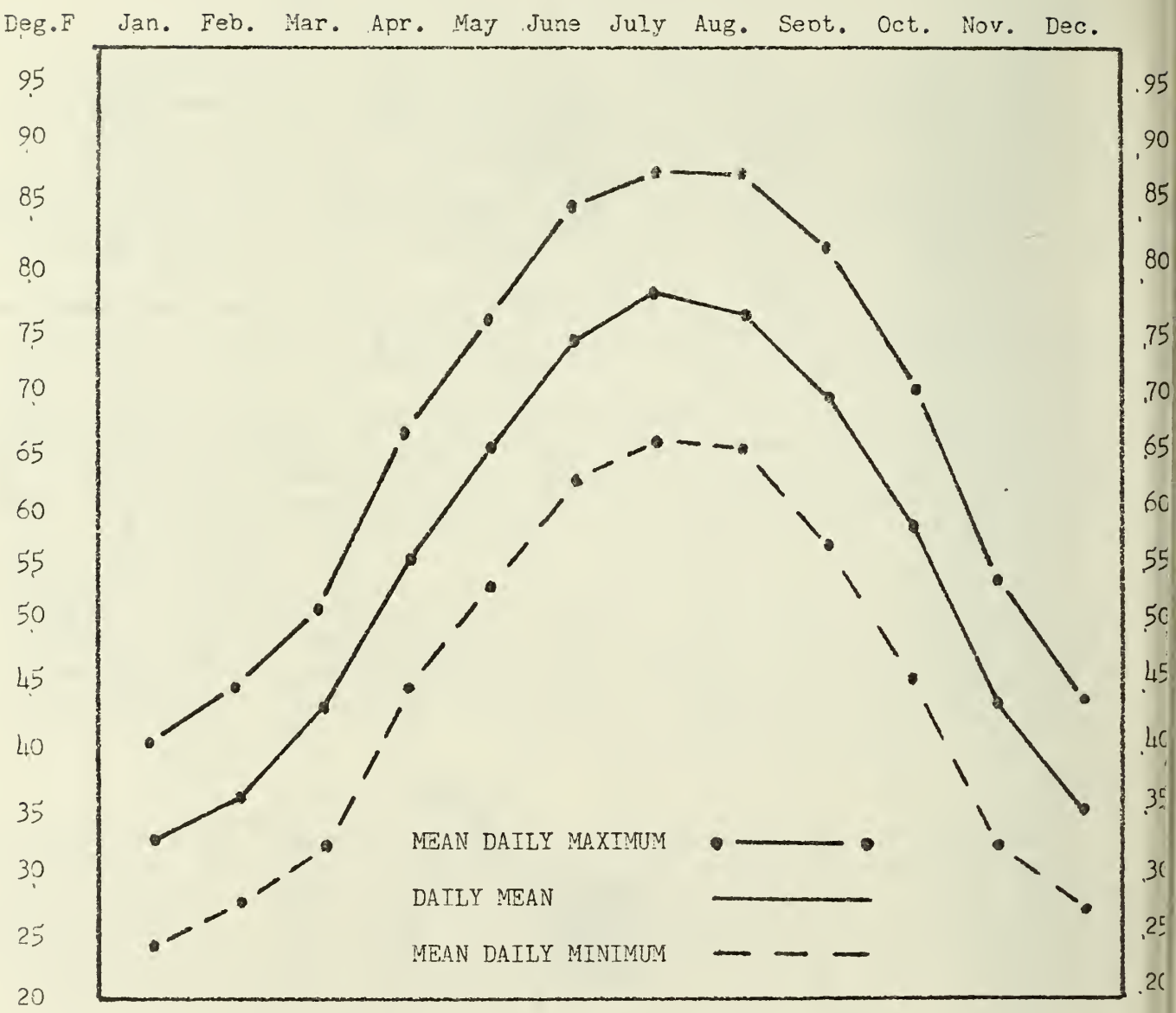


Figure 2

Source of data: CLIMATOGRAPHY OF THE UNITED STATES NO. 86-9 U. S. DEPARTMENT OF COMMERCE.

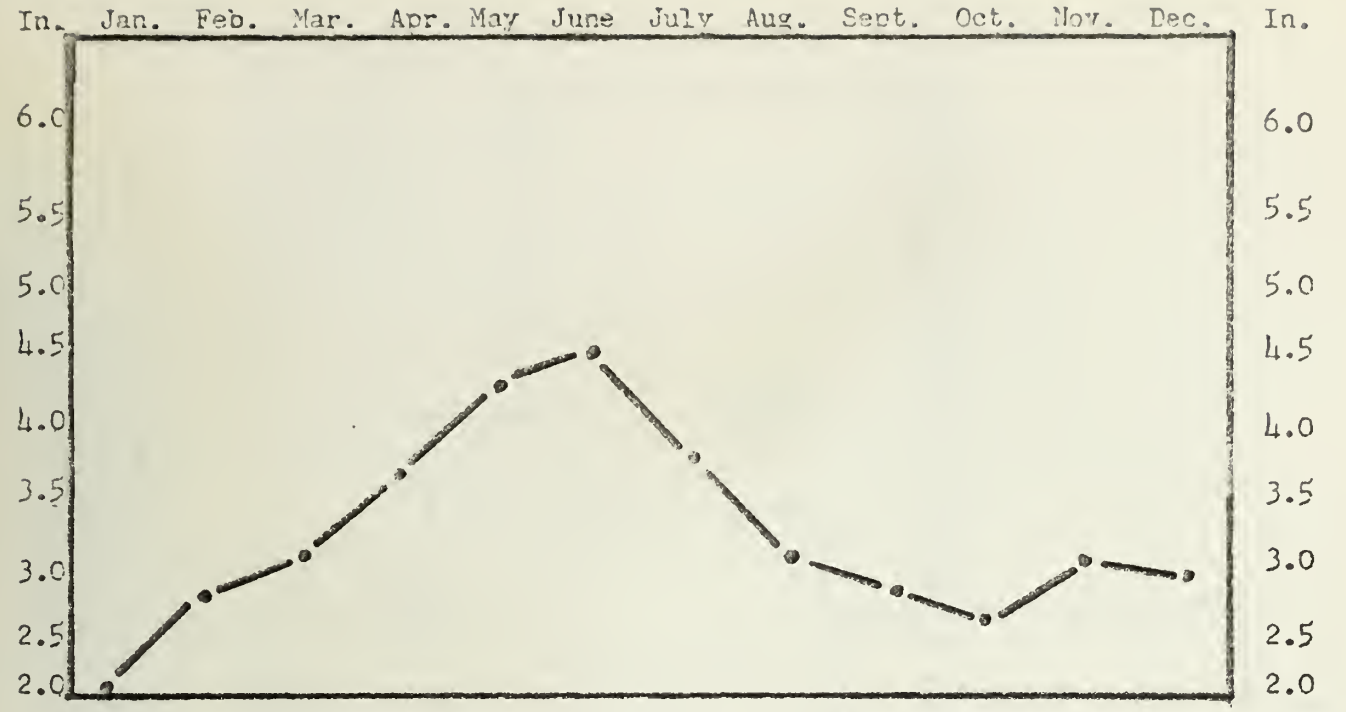


Figure 3 . TOTAL AVERAGE PRECIPITATION, SALEM, ILLINOIS.
(10 year average)

Figure 4 . AVERAGE SNOWFALL, SALEM, ILLINOIS.
(10 year average)

Source of Data: CLIMATOGRAPHY OF THE UNITED STATES NO. 86-9 U.S. DEPT. OF COMMERCE.

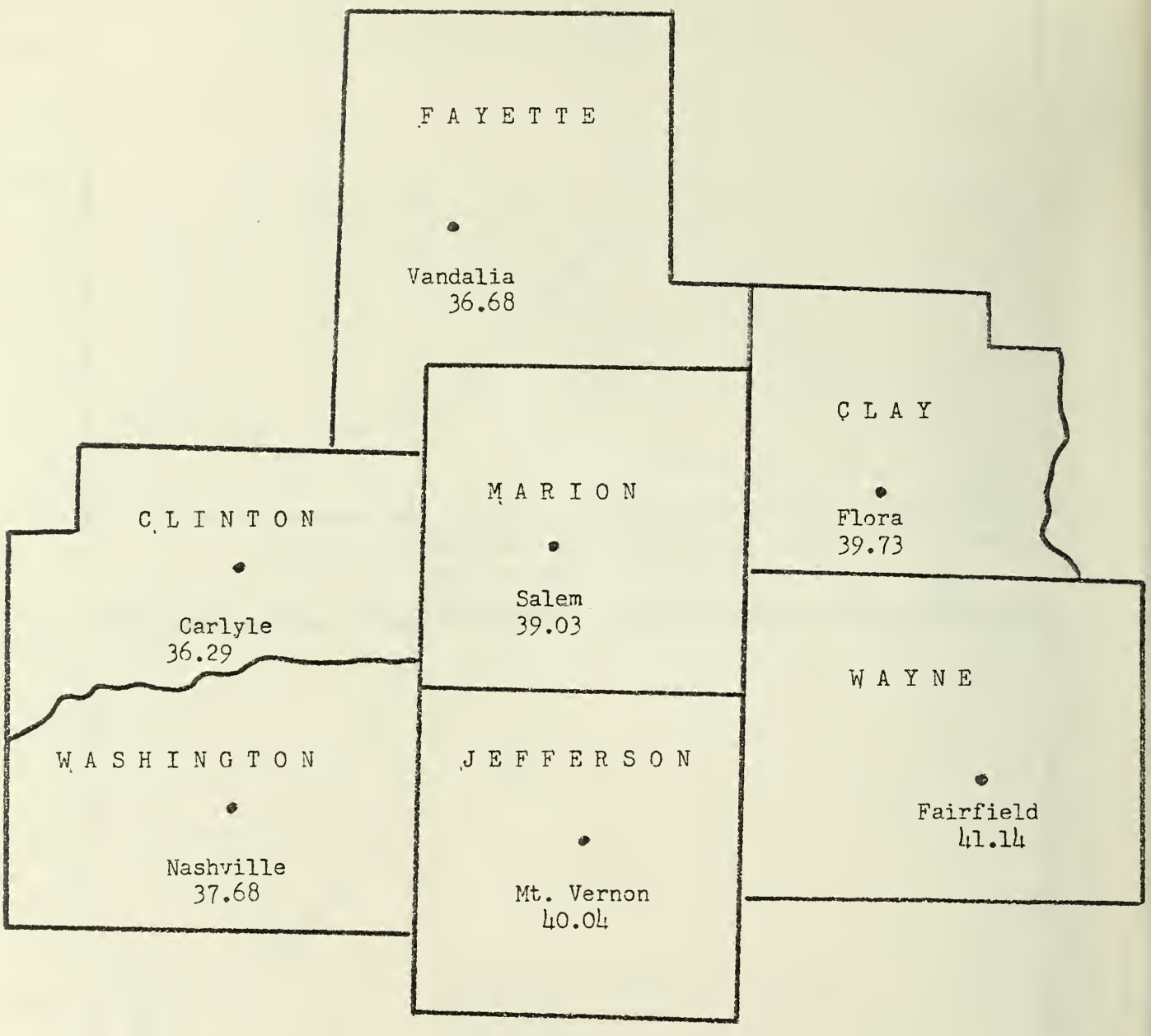


Figure 5 LONG - TERM MEAN ANNUAL PRECIPITATION FOR STATIONS IN AND NEAR MARION COUNTY.

Source of Data: CLIMATOGRAPHY OF THE UNITED STATES NO. 86-9 U. S. WEATHER BUREAU.

	Depth	
	Feet	Inches
Black "slate"	86	-
Sand shale	105	-
"Slate and soapstone"	109	-
Sand shale	118	-
Gray "slate"	120	-
Sandstone, hard	121	-
Gray "slate"	128	-
Sand rock, hard	132	-
"Slate"	137	-
Sand rock, hard	139	-
Gray "slate"	142	-
Limestone conglomerate	143	-
Limestone, pebbly	147	9
"Slate", black	157	4
Coal	158	6
Fireclay	165	6
Shale, gray	185	1
"Slate", black	196	1
Coal	197	7
Fireclay	199	7
Shale	237	5
"Slate", black	242	5
Limestone, bituminous	244	5
Coal	244	11
Limestone and black shale	250	11
Coal	251	1
Clay shale	256	7
Shale, gray and black with bands of lime	307	7
"Slate," black	309	1
Coal	310	-
Fireclay	311	6
Limestone	314	6
Shale, gray	330	3
"Slate," black	333	3
Coal	333	5
Fireclay	336	3
Shale and sandstone	401	9
Coal	402	1
Fireclay	406	1
Limestone	409	1
Shale	480	1
Limestone	492	-
Shale, bituminous, and 2 in. coal	494	-
Shale, pebbly	499	-
Sandstone and shale	575	-
Limestone, pebbly	576	-
Shale, bituminous, and $\frac{1}{2}$ in. coal	579	-
Fireclay	584	-
Sandstone and shale	653	-
Shale, black	653	10
Coal	654	5
Fireclay	656	5
Limestone, sandstone and fireclay	664	11
Shale, blue	689	1
Limestone	710	7

Fireclay	712	7
Shale, green	714	1
Limestone, pebbly	720	1
Sandstone and shale	804	3
Coal No. 7	806	3
Fireclay	817	3
Sandstone and shale	847	3
Coal	849	3
Shale, black	852	5
Hard rock gray limestone	856	5
Coal	860	7

DRAINAGE

Marion County is drained by two major watersheds. The Kaskaskia watershed drains approximately the western one-half of the county and the Wabash the eastern portion of Marion County. There are no major rivers in the county. Small streams such as Fulton, Dums, and Lost Creek drain the eastern one-half of Marion County via Skillet Fork Creek and the Little Wabash River. Streams in the Kaskaskia drainage drain the western side of the county. They include East Fork of the Kaskaskia River, Louse, Davidson, Prairie, Turkey and Brubaker creeks (Figure 6).

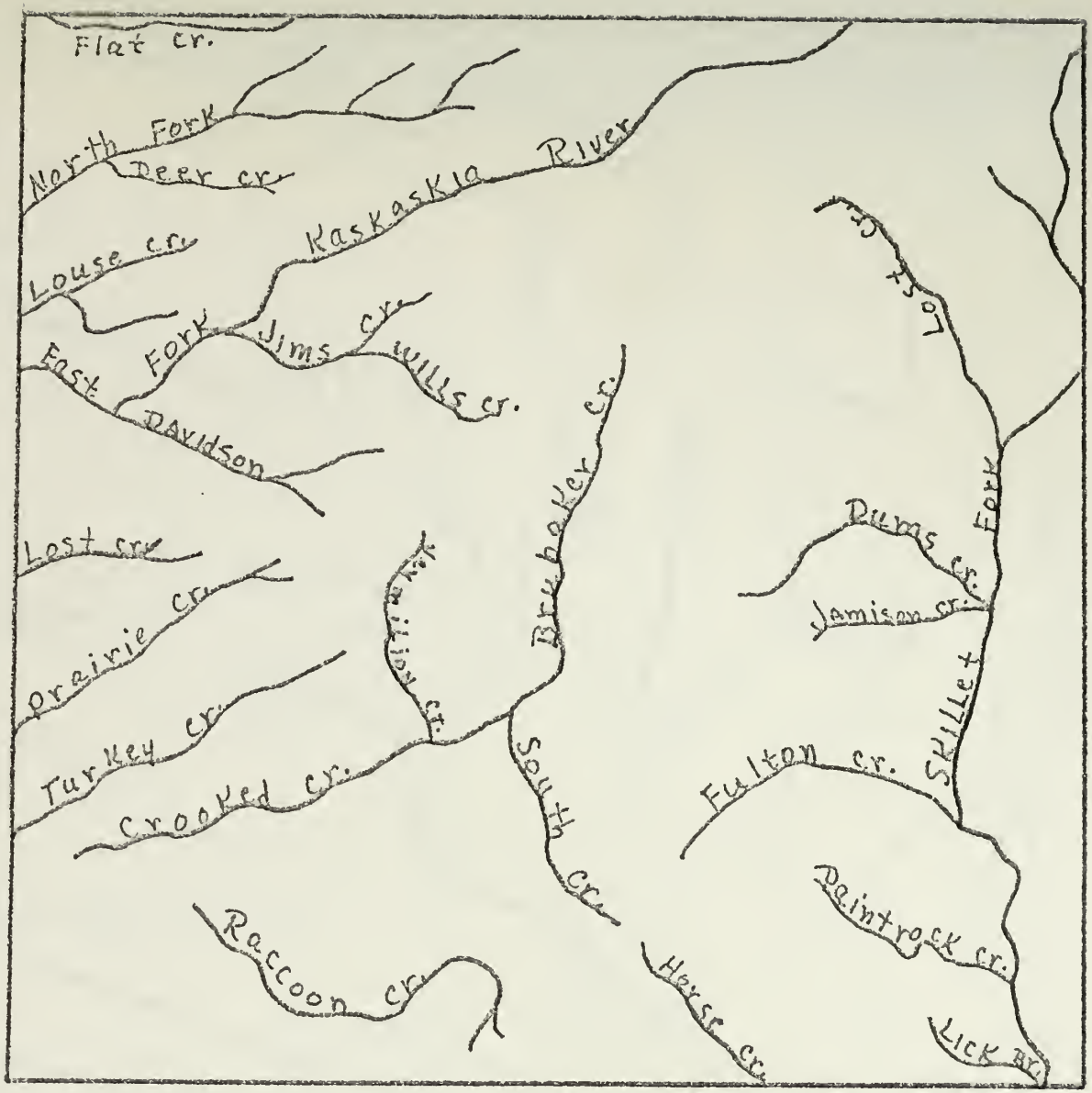
SOILS

Most of Marion County parent soils is formed by loess from 3 to 5 inches thick. Loess is a silty wind deposit formed as dust blown from dried up lake basins. Just a small portion in the extreme southeastern portion of the county, along Skillet Fork Creek, contains some alluvium. The alluvium is composed of sediments deposited by streams on their floodplains. The Marion County soils are low in organic matter, phosphate and potash. The soils are usually acid and require several tons of lime per acre to bring them into a crop productive state.

The soils of Marion County are classified into two land resources areas (Figure 7).

1. Ava-Bluford-Wynoose Association. This soil occurs on nearly level to steep uplands. These light-colored soils have formed under forest vegetation from 1.5 to 4 feet of loess on Illinoian drift. Fertility, erosion control and drainage are the major problems with this type.

2. Hoyleton-Cisne-Huey Association. This soil occurs on uplands. These soils have developed under grass vegetation from 2.5 to 4 feet of loess on weathered Illinoian till. They are acid, strongly to very strongly developed soils and are only moderately dark colored even though formed under the influence of grass vegetation. A mixed type of farming, including livestock as well as grain production is the most common use for this soil.



WATERSHED MAP

MARION COUNTY

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Figure 6

Figure 7

SOILS ASSOCIATION MAP

AREA	LEGEND
1	Ava-Bluford-Wynoose
2	Hoyleton-Cisne-Huey

LAKES

All of the lakes in Marion County have been surveyed and descriptions are provided. Descriptions follow under an alphabetical listing of the lakes. Factual data includes location, size, length of shoreline, maximum depth, ownership, and year impounded. Further descriptions are made as to fertility, fisheries resources, and problems associated with use. In addition to descriptive data, additional data is included in Table 1.

In considering the impoundments of Marion County it is necessary to first establish a definition relative to size. For this discussion, all water areas 6.0 acres and over are classified as lakes. Water areas 5.9 acres and less are referred to as ponds.

Several private ponds and lakes exist in the county. Permission from the owner must be obtained for recreational privileges.

Organizational or club waters are open to members and guests. Memberships are usually available to interested fishermen or other recreationists.

Forbes Lake: T3N, R4E, Section 10; State Ownership; Surface Acres = 525; Maximum Depth = 23 feet; Shoreline Length = 18.4 miles; Constructed = 1962 & 1963.

This state lake was constructed primarily as a fishing lake with funds derived from the sale of fishing licenses and matching funds provided through the Dingell-Johnson program of the Federal Government.

Water was impounded by placing an earth fill on Lost Fork Creek with a spillway at an elevation of 515 feet above sea level located approximately 4 miles east and 2 miles south of Kinmundy. This dam created a 525 acre impoundment being long and narrow with three major fingers and a 1.5 acre island. The shoreline consists of a succession of coves, necks and bays. Topography of the surrounding area is mainly rolling woodland and abandoned cropland. The watershed incorporates 13,800 acres with 2,938 acres of this being state owned.

Forbes Lake is managed by the Illinois Department of Conservation, Division of Fisheries. In July of 1963, 105 gallons of toxaphene was applied to the partially filled lake (approximately 240 acres) to kill all the fish in the lake basin which consisted mainly of green sunfish, golden shiner, bullhead, and other fish species found in small streams. The streams within the watershed were not treated. In 1964, 30,000 channel catfish were stocked. Bluegill, crappie and bullheads entered the lake from watershed streams. Attempts have been made to establish a white bass fishery but a suitable population has not developed.

Slow growth and stunting of the sunfishes (bluegill and crappie) and bullheads was apparent as shown by sampling in 1969. The overpopulation came as a result of: (1) their prolific reproduction capability and (2) extensive growths of aquatic weeds, such as, Najas minor, providing hiding areas in the shallows of all large bays.

In September 1969, 300 gallons of rotenone was applied to 167 acres (approximately 32 percent of the lake) for a partial fish toxicant treatment aimed at the large bay areas and shoreline. This operation was highly successful in thinning the population of crowded fishes. In slightly over a year the weight of the bluegills

TABLE 1

PUBLIC AND ORGANIZATIONAL WATERS OF MARION COUNTY

NAME OF LAKE	DESCR. T. R. SEC.	YEAR CONST.	SURFACE ACRES	MAX. DEPTH (FEET)	SHORELINE LENGTH (MILES)	WATERSHED SIZE (ACRES)	PRIMARY USAGE
FORBES LAKE	3N 4E 10	1962-63	525.00	28.0	18.40	13,800	FISHING
BOY SCOUTS OF AMERICA LAKE	3N 2E 11	1959	29.00	19.0	--	255	RECREATION
CENTRALIA FOUNDATION PARK LAKE	1N 1E 17	1948	1.01	8.5	--	25	RECREATION
COMMUNITY BEACH	2N 1E 32	UNK.	18.00	25.0	1.00	---	RECREATION
GREENVIEW GOLF & COUNTRY CLUB POND#1	1N 1E 31	1965	3.50	10.0	.25	10	FISHING
GREENVIEW GOLF & COUNTRY CLUB POND#2	1N 1E 31	1966	7.00	25.0	.40	1	FISHING
KINMUNDY RESERVOIR	4N 3E 27,28	UNK.	18.70	22.0	3.50	245	WATER SUPPLY
LAKE CENTRALIA	1N 2E 4,5,9	1910	450.00	25.0	6.30	---	WATER SUPPLY
LAKEWOOD, INC.	2N 2E 12	1910	68.00	11.0	2.00	---	RECREATION
MOOSE LAKE	3N 4E 31	1900	6.00	15.0	.48	47	RECREATION
PATOKA CONSERVATION CLUB 100 LAKE	4N 2E 21	1953	22.60	24.0	----	450	RECREATION
PATOKA VERNON CITY RESERVOIR	4N 1E 21	1954	5.25	12.0	.36	---	WATER SUPPLY
RACCOON LAKE	1N 1E 8,9,10,11	1942	970.00	8.0	16.40	---	WATER SUPPLY
ROYAL LAKE ASSOC. KING LAKE	2N 1E 36	1930	7.20	30.0	1.50	40	RECREATION
QUEEN LAKE	2N 1E 36	UNK.	2.50	20.0	.50	20	FISHING
PRINCESS LAKE	2N 1E 36	UNK.	1.50	10.0	.20	---	RECREATION
SALEM COUNTRY CLUB LAKE	2N 3E 31	1910	6.80	15.0	----	70	RECREATION
SALEM RESERVOIR	2-3N 2E 2,35	1938	59.20	14.0	----	750	WATER SUPPLY
SALEM SPORTSMEN CLUB LAKE	2N 3E 31	1956	9.10	14.0	.50	70	RECREATION

INCREASED FROM 0.15 POUNDS TO 0.22 POUNDS FOR 6.5 INCH FISH; 0.19 POUND TO 0.26 POUND FOR 7.0 INCH FISH; AND 0.26 POUND TO 0.33 POUND FOR THE 7.5 INCH GROUP FISH. A FEW LARGE BASS WERE SACRIFICED, BUT THOSE REMAINING HAD A VERY SUCCESSFUL SPAWNING SEASON AND HAVE PRODUCED AN INCREASING BASS POPULATION.

MANAGEMENT TO CONTROL AQUATIC WEEDS CANNOT BE UNDERTAKEN ON FORBES DUE TO THE LAKE WATER NOW BEING USED AS A DRINKING WATER SUPPLY. HERBICIDES RECOMMENDED FOR CONTROL OF AQUATIC WEEDS ARE NOT APPROVED FOR USE IN LAKES SERVING AS A DRINKING WATER SUPPLY.

CREEL CENSUSING WAS UNDERTAKEN IN 1966. PROJECTED CREEL DATA INDICATED 10,122 FISHERMEN FISHED A TOTAL OF 32,476.5 HOURS AND CAUGHT 52,461 FISH AT A RATE OF 1.62 FISH PER HOUR. THIS REPRESENTS AN ANNUAL HARVEST OF 20.13 POUNDS OF FISH CROPPED PER ACRE FOR THE PERIOD OF THE CENSUS (APRIL 15 - SEPTEMBER 7). FOR THIS POUNDAGE, FISHERMEN SPENT 61.86 HOURS PER ACRE IN EFFORT (TABLE 8).

IN AN ATTEMPT TO MANAGE RECREATION IN CONJUNCTION WITH THE FISHERY OF FORBES LAKE AN UNLIMITED MOTOR SIZE IS ALLOWED DURING THE MAIN RECREATION SEASON (JUNE 16 TO SEPTEMBER 14) IN THE LARGE MAIN BASIN AND NO WAKE AREAS. A MAXIMUM MOTOR SIZE OF 10 HORSEPOWER IS ENFORCED THE REMAINDER OF THE YEAR.

BOY SCOUTS OF AMERICA LAKE (ROCHESTER-GODELL LAKE); T3N, R2E, SECTION 11; ORGANIZATIONAL; SURFACE ACRES = 29; MAXIMUM DEPTH = 19 FEET; SHORELINE LENGTH = 1.23 MILES; CONSTRUCTED = 1959.

THE LAKE CONSISTS OF A LARGE BASIN NEAR THE DAM AND BRANCHES TO THREE LARGE IRREGULAR FINGERS WITH SEVERAL COVES. THE LAKE IS LOCATED APPROXIMATELY 4.5 MILES NORTH AND .25 MILE WEST OF SALEM. RECREATION IS THE MAJOR USAGE OF THE LAKE AND FISHING IS CENTERED ON LARGEMOUTH BASS, BLUEGILL, AND BLACK BULLHEAD. AN OVERPOPULATION OF BLUEGILL AND GREEN SUNFISH HAD BEEN A PROBLEM UNTIL JULY, 1964, WHEN A PARTIAL ROTENONE TREATMENT REDUCED THE NUMBER OF SMALL SUNFISHES. THIS TREATMENT WAS SUCCESSFUL IN REDUCING LARGE NUMBERS OF SMALL SUNFISH THEREBY LESSENING THE COMPETITION OF THE REMAINING FISH FOR FOOD AND SPACE.

A NEARBY ASSOCIATED POND, COMMONLY CALLED THE EAST POND, IS 3 ACRES IN SIZE HAVING A MAXIMUM DEPTH OF 11 FEET. A COMPLETE REMOVAL OF ALL FISH PRESENT WAS UNDERTAKEN IN JULY, 1960 BY THE USE OF A FISH TOXICANT; LATER RESTOCKED WITH LARGEMOUTH BASS AND REDEAR SUNFISH.

CENTRALIA FOUNDATION PARK LAKE: T1N, R1E, SECTION 17; PUBLIC OWNERSHIP; SURFACE ACRES = 1.01; MAXIMUM DEPTH = 8.5 FEET; SHORELINE LENGTH = 1.0 MILE; CONSTRUCTED = 1948.

THIS SMALL POND HAS A GENERAL TRIANGULAR SHAPE AND IS LOCATED WITHIN THE CORPORATE LIMITS OF CENTRALIA ON THE EAST EDGE OF THE CITY. THE POND HAS A GENERAL RECREATION AND FISHING USAGE. IN SEPTEMBER 1960 THERE WAS A COMPLETE CHEMICAL REMOVAL OF AN UNDESIRABLE POPULATION OF GREEN SUNFISH, GOLDEN SHINER, AND CRAPPIE. IN OCTOBER IT WAS RESTOCKED WITH LARGEMOUTH BASS AND REDEAR SUNFISH. IN 1966 THE POND WAS DRAINED AND BULLDOZED FROM .5 ACRE TO ITS PRESENT 1.01 ACRES SIZE AND IN THE SPRING OF 1967 IT WAS RESTOCKED WITH FINGERLING LARGEMOUTH BASS AND BLUEGILL. THE MOST COMMON AQUATIC VEGETATION HAS BEEN COONTAIL.

COMMUNITY BEACH LAKE: T2N, R1E, SECTION 32; PUBLIC OWNERSHIP; SURFACE ACRES = 18; MAXIMUM DEPTH = 25 FEET; SHORELINE LENGTH = 1.0 MILE; CONSTRUCTED = OLD.

LOCATED 1 MILE NORTH AND 1 MILE EAST OF CENTRALIA THIS 18 ACRE LAKE HAS A LONG TRIANGULAR SHAPE. BEING USED FOR RECREATION, THE MAIN SPORT IS FISHING FOR LARGEMOUTH BASS AND CHANNEL CATFISH. ALSO PRESENT ARE BLUEGILL, WARMOUTH, BULLHEADS, GREEN SUNFISH AND REDEAR SUNFISH. IN JUNE 1960 AN UNDESIRABLE FISH POPULATION, CONSISTING MAINLY OF CARP AND SHAD, WAS CHEMICALLY REMOVED AND THE LAKE

TABLE 8

CREEL CENSUS SUMMARY

STEPHEN A. FORBES LAKE

	Actual Data	Projected Data
Number of Boat Fishermen	640	4,647
Number of Bank Fishermen	578	5,475
Total Number of Fishermen	1,218	10,122
Hours of Boat Fishing	2,058.50	17,148.00
Hours of Bank Fishing	1,518.50	15,328.50
Total Hours Fished	3,577.00	32,476.50
Fish Caught by Boat Fishermen	1,703	14,474
Fish Caught by Bank Fishermen	3,757	37,987
Total Number of Fish Caught	5,460	52,461
Total Pounds of Fish Caught		10,571.25

Catch Rate: (Projected Data)

Boat Fishermen	0.85 Fish Per Hour
Bank Fishermen	2.48 Fish Per Hour
Both Types	1.62 Fish Per Hour

Average Number of Hours Per Completed Fishing Trip:

Boat	3.69
Bank	2.80

Lake Size: 525 Acres

Pounds of Fish Caught Per Acre	20.13
Hours of Fishing Pressure Per Acre	61.86

Major Species Composition of the Total Catch:

Species	Percent
Bluegill	57.34
Black Bullhead	19.54
Largemouth Bass	7.97
Green Sunfish	5.35
Longear Sunfish	4.54
Hybrid Sunfish	2.91
White Crappie	1.45
Yellow Bullhead	0.79
Golden Shiner	0.09
Black Crappie	0.02

RESTOCKED WITH LARGEMOUTH BASS AND REDEAR SUNFISH. IN AUGUST 1964 A PARTIAL CHEMICAL TREATMENT WAS USED SELECTIVELY FOR BLUEGILL AND GREEN SUNFISH. CHANNEL CATFISH WERE LATER STOCKED IN THE SPRING OF 1965. AQUATIC VEGETATION CONSISTS OF SAGO, COONTAIL, AND LOTUS. IN JUNE, 1968 COONTAIL BECAME A SERIOUS PROBLEM REQUIRING A HERBICIDE TREATMENT.

GREENVIEW GOLF AND COUNTRY CLUB POND #1: T CENTRALIA, R1E, SECTION 31; ORGANIZATIONAL; SURFACE ACRES = 3.5; MAXIMUM DEPTH - 10 FEET; SHORELINE LENGTH = 0.25 MILE; CONSTRUCTED = 1965.

THIS POND OF 3.5 ACRES HAS A GENERAL TRIANGULAR SHAPE AND IS LOCATED 1.5 MILES SOUTH OF CENTRALIA. THE SURROUNDING SHORELINE AREA CONSISTS OF ROLLING GOLF FAIRWAYS WHICH ARE IRRIGATED BY WATER FROM THIS POND. THERE HAS BEEN NO PROBLEM WITH AQUATIC WEEDS AND THE FISHING HAS BEEN GOOD. LARGEMOUTH BASS, BLUEGILL, CHANNEL CATFISH AND GREEN SUNFISH ARE THE MOST COMMON CAUGHT WITH BLUEGILLS HAVING ATTAINED A LARGE DESIRABLE SIZE. FUTURE MANAGEMENT WORK ON THE SUNFISH WILL BE NECESSARY TO MAINTAIN THE DESIRABLE FISHING SIZE OF THE BLUEGILL.

GREENVIEW GOLF AND COUNTRY CLUB POND #2: T. CENTRALIA, R1E, SECTION 31; ORGANIZATIONAL; SURFACE ACRES = 7; MAXIMUM DEPTH = 25 FEET; SHORELINE LENGTH = .4 MILE; CONSTRUCTED = 1966.

THE LOCATION OF THIS LAKE IS SOUTH FROM POND #1. ITS GENERAL SHAPE IS ALSO TRIANGULAR BUT ITS SURROUNDING AREA IS WOODED. SOME WATER FROM THIS LAKE IS USED FOR WATERING THE GOLF GREENS BUT ITS MOST POPULAR USE IS FISHING. LARGEMOUTH BASS, BLUEGILL AND GREEN SUNFISH ARE THE PREDOMINANT SPECIES WITH FISHING BEING GOOD FOR THE BASS AND BLUEGILL.

KINMUNDY RESERVOIR: T4N, R3E, SECTION 27 & 28; PUBLIC OWNERSHIP; SURFACE ACRES = 18.7; MAXIMUM DEPTH = 22 FEET; SHORELINE LENGTH = 3.5 MILES; CONSTRUCTED = "VERY OLD".

THIS 18.7 ACRE IMPOUNDMENT HAS A LONG POINTED AND BRANCHING MAIN TRUNK, TREE-LIKE IN SHAPE. ONCE THE LAKE WAS USED AS A WATER SUPPLY FOR STEAM LOCOMOTIVES. WITH AN END TO STEAM ENGINES THE ILLINOIS CENTRAL RAILROAD GAVE THE AREA TO THE CITY OF KINMUNDY. THE LAKE, LOCATED 1 MILE SOUTH OF KINMUNDY, IS USED AS A CITY WATER SUPPLY AND RECREATION. SPECIES OF FISH PRESENT INCLUDE LARGEMOUTH BASS, BLUEGILL, BLACK AND WHITE CRAPPIE, GREEN SUNFISH, WARMOUTH, GRASS PIKE AND CHANNEL CATFISH. IN 1958, 1,000 LARGEMOUTH BASS AND 300 CHANNEL CATFISH WERE STOCKED. IN 1963 AN ADDITIONAL 400 CHANNEL CATFISH WERE ADDED. FISHING HAS PRESENTLY BEEN HINDERED BY AN OVERPOPULATION OF SUNFISHES AND DENSE AQUATIC WEED GROWTHS.

LAKE CENTRALIA: T1N, R2E, SECTION 4,5,9; PUBLIC OWNERSHIP; SURFACE ACRES = 450; MAXIMUM DEPTH = 25 FEET; SHORELINE LENGTH = 6.3 MILES; CONSTRUCTED = 1910.

AN AREA OF 450 ACRES IS COVERED BY THIS LAKE WHICH SNAKES ITS WAY THROUGH A GORGE. THE SHORELINE IS A SERIES OF POINTS AND COVES OVER ITS ENTIRE LENGTH WITH SEVERAL LARGE BAYS ON THE UPPER END. THE LAKE IS LOCATED 2 MILES NORTHEAST OF CENTRALIA AND IS USED AS AN ALTERNATE CITY WATER SUPPLY. THE FISH POPULATION CONSISTS OF LARGEMOUTH BASS, BLUEGILL, CHANNEL CATFISH, CRAPPIE, BULLHEADS AND CARP. AN ABUNDANCE OF UNDESIRABLE FISH HAS RESULTED IN SMALLER CATCHES BY THE FISHERMEN. THIS LAKE HAS RECEIVED PERIODIC STOCKINGS OF CHANNEL CATFISH OVER THE YEARS. MUCH OF THE FISHING HAS CENTERED ON THE CATFISH WHICH IS REPORTED TO BE GOOD AT CERTAIN TIMES OF THE YEAR.

Lake Wood, Inc.: T2N, R2E, Section 12; Organizational; Surface Acres = 68; Maximum Depth = 11 feet; Shoreline Length = 2.0 miles; Constructed = 1910.

The lake is long with one minor branch and many small inlets and is located on the east edge of Salem. The lake is used for recreation - especially fishing. After periodic winter kills of shad and an overpopulation of bullheads and carp, the lake was "killed out" and restocked with largemouth bass and bluegill in 1969. Aquatic vegetation has appeared mainly as plankton blooms. Some organic pollution enters the lake from septic drainage from a portion of city homes surrounding the lake. At this time it serves to enrich the fertility of the water; however, this uncontrolled enrichment is not desirable due to the problems which can result. Growth of the stocked species is normal for a rehabilitated body of water.

Moose Lake: T3N, R4E, Section 31; Organizational; Surface Acres = 6; Maximum Depth = 15 feet; Shoreline Length = 0.48; Constructed = 1900.

The lake has a triangular shape with a generally smooth shoreline and is located on the northeast edge of Salem. The lake is used primarily for recreation with fishing pressure concentrated on largemouth bass and bluegill. In the past there was an overpopulation of golden shiner, green sunfish, bluegill and some bullheads. In the fall of 1966 a complete chemical removal of the fish was undertaken and the lake was restocked with largemouth bass and bluegill. Aquatic vegetation consisting of filamentous algae, water willow and primrose have been a problem and chemically treated from time to time.

Patoka Conservation Club 100 Lake: T4N, R2E, Section 21; Organizational; Surface Acres = 22.6; Maximum Depth = 24 feet; Shoreline Length = 17.5 miles; Constructed = 1953.

The shape of the lake is that of a long rectangle with many small fingers and coves and is located 1 mile north and 4 miles east of Patoka. Recreation has been the main usage of the lake; fishing for largemouth bass, bluegill, bullhead and channel catfish. Problems concerning the lake are aquatic vegetation growths consisting of primrose, coontail, sago and filamentous algae. An overpopulation of bluegill has resulted in a small stunted size but the bass population is in good shape. The lake has been drawn down in past years to concentrate the small sunfishes and make them more vulnerable to predation by the largemouth bass. The overpopulated sunfish problem persists in the lake and additional management will be required.

Patoka-Vernon City Reservoir: T4N, R1E, Section 21; Public Ownership; Surface Acres = 5.25; Maximum Depth = 12 feet; Shoreline Length = .36 mile; Constructed = 1954.

This impoundment has a general rectangular shape and is located 1 mile south of Vernon. Its primary function is a city water supply for Patoka and Vernon. There is some fishing for largemouth bass, bluegill, green sunfish, white crappie, carp and bullhead. An undesirable population has developed with stunted sunfishes and a high population of bullheads and carp.

Raccoon Lake: T1N, R1E, Section 8,9,10,11; Public Ownership; Surface Acres = 970; Maximum Depth = 8 feet; Shoreline Length = 16.4 miles; Constructed = 1942.

This lake is very long and winding with a very irregular shoreline and many large coves and bays. The lake, which is 1 mile east of Centralia, has a primary use as the city water supply. Fishing also plays a role since the lake has several species of catchable fish including largemouth bass, bluegill, yellow bass, white crappie, warmouth, green sunfish and carp. The aquatic vegetation common to the

LAKE CONSISTS OF LOTUS, WATER LILIES AND PRIMROSE. CRAPPIE HAVE BEEN KNOWN TO PROVIDE A VERY GOOD FISHERY IN YEARS WHEN THEY ARE NOT IN HIGH STUNTED NUMBERS. A FEW ATTEMPTS HAVE BEEN MADE TO REDUCE THE CARP POPULATION BY COMMERCIAL FISHING. THIS HAVE NEVER BEEN SUCCESSFUL. GENERALLY, THE SIZE AND NUMBER ARE NOT THERE FOR THE COMMERCIAL FISHERMEN TO REALIZE A SUBSTANTIAL PROFIT AND HE GIVES UP. THUS THE SMALL POUNDAGE REMOVED IS REPLACED BY REPRODUCTION, RESULTING IN LITTLE BENEFIT OF SPACE OR FOOD TO THE SPORT FISH SPECIES.

FROM PREVIOUS SAMPLINGS AN OUTSTANDING LUNKER BASS POPULATION IS PRESENT. THEY MAY BE DIFFICULT TO CATCH DUE TO THE ABUNDANCE OF FORAGE SPECIES (GIZZARD SHAD); HOWEVER, THEY ARE PRESENT IN SIZE AND NUMBER TO PROVIDE DESIRABLE LUNKER BASS FISHING.

ROYAL LAKES ASSOCIATION - KING LAKE: T2N, R1E, SECTION 36; ORGANIZATIONAL; SURFACE ACRES = 7.2; MAXIMUM DEPTH = 30 FEET; SHORELINE LENGTH = 1.5 MILES; CONSTRUCTED = 1930.

KING LAKE IS ONE OF THE THREE NAMED ROYAL LAKES OWNED BY THE ROYAL LAKE ASSOCIATION. IT IS RECTANGULAR SHAPED WITH SEVERAL COVES AND BAY AREAS. LOCATED 3 MILES SOUTH OF ODIN, THE PRIME FUNCTION OF THE LAKE IS RECREATION. FISH SPECIES PRESENT IN KING LAKE ARE: LARGEMOUTH BASS, BLUEGILL, WARMOUTH, CRAPPIE AND BULLHEAD. BLUEGILL ARE BECOMING OVERPOPULATED AND SHOW POOR GROWTH. AQUATIC VEGETATION FOUND IN THIS LAKE CONSISTS OF WATER PRIMROSE, COONTAIL AND CATTAILS.

ROYAL LAKES ASSOCIATION - QUEEN LAKE: T2N, R1E, SECTION 36; ORGANIZATIONAL; SURFACE ACRES = 2.5; MAXIMUM DEPTH = 20 FEET; SHORELINE LENGTH = 0.5 MILE; CONSTRUCTED = UNKNOWN.

QUEEN LAKE IS SHAPED SOMEWHAT LIKE A SLINGSHOT, HAVING A BASE AND TWO LONG FINGERS. IT IS ALSO USED FOR RECREATION ESPECIALLY FISHING FOR LARGEMOUTH BASS, BLUEGILL AND GREEN SUNFISH. AS IN KING LAKE, THIS LAKE HAS DEVELOPED AN OVERPOPULATION OF BLUEGILL. WATER PRIMROSE AND COONTAIL ARE THE DOMINANT AQUATIC VEGETATION.

ROYAL LAKES ASSOCIATION - PRINCESS LAKE: T2N, R1E, SECTION 36; ORGANIZATIONAL; SURFACE ACRES = 1.5; MAXIMUM DEPTH = 10 FEET; SHORELINE LENGTH = 0.2 MILE; CONSTRUCTED = UNKNOWN.

THIS TRIANGULAR SHAPED POND IS THE SMALLEST OF THE ROYAL LAKES. AN OVERPOPULATION OF BULLHEAD CATFISH AND OTHER SMALL SUNFISHES WAS ERADICATED IN 1963. THE POND WAS NEVER RESTOCKED WITH A DESIRABLE PLANTING OF FISH AND IT BECAME CONTAMINATED WITH A STUNTED POPULATION OF GREEN SUNFISH. CURRENTLY THE POND DOES NOT PROVIDE DESIRABLE FISHING AND NEEDS TO BE REHABILITATED.

SALEM COUNTRY CLUB LAKE: T2N, R3E, SECTION 31; ORGANIZATIONAL; SURFACE ACRES = 6.8; MAXIMUM DEPTH = 15 FEET; SHORELINE LENGTH = 5.0 MILES; CONSTRUCTED = 1910.

LOCATED ON THE SOUTHEAST EDGE OF SALEM, THIS 6.8 ACRE LAKE CONSISTS OF THREE LARGE FINGERS WITH AN IRREGULAR TO EVEN SHORELINE. IT HAS BEEN USED MAINLY FOR RECREATION AND WATER FOR GOLF GREENS. THE FISH LIFE CONSISTS OF LARGEMOUTH BASS, BLUEGILL, BLACK AND WHITE CRAPPIE, YELLOW BASS, WARMOUTH, YELLOW BULLHEAD AND SHAD. THERE HAS BEEN A LARGE POPULATION OF BLUEGILL AND SHAD WITH THE SHAD FREQUENTLY WINTER KILLING. FILAMENTOUS ALGAE AND PRIMROSE, HAVE BEEN A PROBLEM IN IMMEDIATE SHORELINE AREAS.

Salem Reservoir: T2-3N, R2E, Sections 2,35; Public Ownership; Surface Acres = 59.2; Maximum Depth = 14 feet; Shoreline Length = 3.2 miles; Constructed = 1938.

This 59.2 acre impoundment is long and narrow with several fingers and many small coves. The surrounding area is gently rolling and some cropland is located within the watershed. The lake itself is situated on the northwest edge of Salem and is used primarily as a city water supply. The catchable fish population consists of largemouth bass, bluegill, black and white crappie, grass pickerel, drum, bullheads and carp. Along the shoreline and shallow necks various species of aquatic vegetation can be found, such as filamentous algae, coontail, sago, pondweed, primrose and lotus.

Salem Sportsmens Club Lake: T2N, R3E, Section 31; Organizational; Surface Acres = 9.1; Maximum Depth = 14 feet; Shoreline Length = .5 mile; Constructed = 1956.

Situated 2.5 miles southeast of Salem this lake is palm shaped with three prominent fingers having an irregular shoreline of small coves and inlets. The main usage is recreation and fishing is directed toward largemouth bass, bluegill, crappie, channel catfish and flathead catfish. Aquatic vegetation is primarily primrose; an underwater plant, brittle naiad, is located in the shallow water areas.

STREAMS

For this discussion, only major game and commercial species will be considered (Table 2). Many other species of fish do exist in Marion County and are tabulated in Table 3. The list is incomplete and will increase as new species are discovered.

All stream descriptions are by name and location of stream effluence or where it leaves the county (Table 4).

Skillet Fork Creek: T1N, R4E, Section 36; Surface Acres = 44; Miles = 25; Average Width = 15 feet; Gradient = 0.75 feet per mile; Tributary to: Little Wabash River.

Skillet Fork is a major tributary in the Little Wabash drainage basin. This stream originates near Iuka (Marion County) and flows a southeastward meandering course to a point 5 miles southeast of Wayne City in Wayne County. From here the stream has been channelized in an effort to facilitate a more rapid drainage of the lowlands. The channelization extends from Wayne City to a point 14 miles south where it assumes a more moderate form of the original meandering course before emptying into the Little Wabash River approximately 2.5 miles northeast of Carmi. Total length of the stream is 85 miles.

Skillet Fork is a low gradient, shallow stream with a varying bottom of silt, sand and gravel. Shoreline vegetation is mainly trees and brush. The stream is used only to a limited extent by local fishermen. The stream fishery consists of yellow bullhead, Kentucky bass, drum, green sunfish, longear sunfish, bluegill and various minnows.

Since Skillet Fork flows primarily over private property, permission must be obtained to trespass. The only public access is at road right-of-ways and bridges.

TABLE 2

A CATEGORICAL LISTING OF FISHES OCCURRING IN ILLINOIS

GAME

Rainbow Trout	Yellow Bass	Spotted Sunfish
Brown Trout	Rock Bass	Smallmouth Bass
Grass Pickerel	Flier	Largemouth Bass
Northern Pike	Warmouth	White Crappie
Black Bullhead	Green Sunfish	Black Crappie
Yellow Bullhead	Pumpkinseed Sunfish	Yellow Perch
Brown Bullhead	Orangespotted Sunfish	Sauger
Channel Catfish	Bluegill	Walleye
Flathead Catfish	Longear Sunfish	Freshwater Drum
White Bass	Redear Sunfish	Hybrid Sunfish

COMMERCIAL

Shovelnose Sturgeon	Goldeye	Bigmouth Buffalo
Longnose Gar	Mooneye	Black Buffalo
Spotted Gar	Carpsucker Sp.	Smallmouth Buffalo
Shortnose Gar	White Sucker	Spotted Sucker
Bowfin	Hog Sucker	Carp
	Redhorse	Eel

FORAGE

Brook Lamprey	Gambusia	Redfin Shiner
Gizzard	Logperch	Common Shiner
Stonecat	Creek Chub	Emerald Shiner
Madtom Sp.	Stoneroller	Brook Stickleback
Johnny Darter	Hornyhead Chub	Brook Silverside
Bluntnose Darter	Bluntnose Minnow	Silverjaw Minnow
Slenderhead Darter	Suckermouth Minnow	Spotfin Shiner
Fantail Darter	Fathead Minnow	Ghost Shiner
Rainbow Darter	Redbelly Dace	Mimic Shiner
Blackside Darter	Roseyface Shiner	Bullhead Minnow
Banded Darter	Sand Shiner	Golden Shiner
Orangethroat Darter	Steelcolor Shiner	Blacknose Shiner
River Darter	Blackstripe Topminnow	Redfin Shiner
Ironcolor Shiner	Red Shiner	Sculpin Sp.
Weed Shiner	Pirate Perch	Swamp Darter
Pugnose Minnow	Mud Darter	Central Mudminnow
Blackspotted Topminnow	Bigeye Shiner	

Source of Data: DEPARTMENT OF CONSERVATION, DIVISION OF FISHERIES, MANUAL OF OPERATIONS.

TABLE 3

FISHES OCCURRING IN MARION COUNTY

AMIIDAE (BOWFIN FAMILY)
- BOWFIN - AMIA CALVA (LINNAEUS)

CLUPEIDAE (HERRING FAMILY)
- GIZZARD SHAD - DOROSOMA CEPEDIANUM (LE SUEUR)

ESOCIDAE (PIKE FAMILY)
- GRASS PICKEREL - ESSOX AMERICANUS (LE SUEUR)

CATOSTOMIDAE (SUCKER FAMILY)
- SMALLMOUTH BUFFALO - ICTIOBUS BUBALUS (RAFINESQUE)

CYPRINIDAE (MINNOW FAMILY)
- CARP - CYPRINUS CARPIO (LINNAEUS)
- GOLDEN SHINER - NOTEMIGONUS CRYSOLEUCAS (MITCHILL)
- REDFIN SHINER - NOTROPIS UMBRATILIS (COPELAND)
- SUCKERMOUTH MINNOW - PHENACOBIUS MIRABILIS (GIRARD)
- CENTRAL BIGMOUTH SHINER - NOTROPIS CHRYSOCEPHALUS (RAFINESQUE)

ICTALURIDAE (CATFISH FAMILY)
- BLACK BULLHEAD - ICTALURUS MELAS (RAFINESQUE)
- YELLOW BULLHEAD - ICTALURUS NATALIS (LE SUEUR)
- CHANNEL CATFISH - ICTALURUS PUNCTATUS (RAFINESQUE)
- FLATHEAD CATFISH - PYLODICTIS OLIVARIS (RAFINESQUE)
- TADPOLE MADTOM - NOTURUS GYRINUS (MITCHILL)

CYPRINODONTIDAE (TOPMINNOW FAMILY)
- BLACKSTRIPE TOPMINNOW - FUNDULUS NOTATUS (RAFINESQUE)

APHREDODERIDAE (PIRATEPERCH FAMILY)
- PIRATEPERCH - APHREDODERUS SAYANUS (GILLIAMS)

SERRANIDAE (BASS FAMILY)
- YELLOW BASS - ROCCUS MISSISSIPPENSIS (JORDAN & EIGENMANN)

CENTRARCHIDAE (SUNFISH FAMILY)
- WARMOUTH - CHAENOBRYTTUS GULOSUS (CUVIER)
- GREEN SUNFISH - LEPOMIS CYANELLUS (RAFINESQUE)
- BLUEGILL SUNFISH - LEPOMIS MACROCHIRUS (RAFINESQUE)
- LONGEAR SUNFISH - LEPOMIS MEGALOTIS (COPE)
- SPOTTED BASS - MICROPTERUS PUNCTULATUS (RAFINESQUE)
- LARGEMOUTH BASS - MICROPTERUS SALMOIDES (LACEPEDE)
- WHITE CRAPPIE - POMOXIS ANNULARIS (RAFINESQUE)
- BLACK CRAPPIE - POMOXIS NIGROMACULATUS (LE SUEUR)

SCIAENIDAE (DRUM FAMILY)
- FRESHWATER DRUM - APOLDINOTUS GRUNNIENS (RAFINESQUE)

SOURCE OF DATA: INVENTORY OF THE FISHES OF THE LITTLE WABASH RIVER BASIN, 1962; ILLINOIS DEPARTMENT OF CONSERVATION

TABLE 4
STREAMS OF MARION COUNTY

Name of Stream	Legal Description	Surface Acres	Miles in Co.	Width in Ft.	Inter-mittent	Percent Dredged
Flat Creek	T4N R1E S. 1	6.6	5.5	10.0	-	-
North Creek	T4N R3E S. 6	18.2	15.0	10.0	-	-
Deer Creek	T4N R2E S.19	5.4	4.5	10.0	x	-
Long Br.	T4N R2E S.13	2.4	2.0	10.0	x	-
Louse Creek	T4N R2E S.30	8.4	7.0	10.0	x	-
Louse Run	T3N R1E S. 2	6.0	5.0	10.0	x	-
Davidson Creek	T3N R2E S.22	11.5	9.5	10.0	x	-
Barden Creek	T3N R2E S.17	3.6	3.0	10.0	x	-
Jims Creek	T4N R2E S.36	7.8	6.5	10.0	x	-
Wills Creek	T3N R2E S.14	3.6	3.0	10.0	x	-
Lost Creek	T3N R1E S.36	7.3	6.0	10.0	x	-
Prairie Creek	T2N R1E S.30	9.6	8.0	10.0	x	-
Turkey Creek	T2N R2E S. 5	13.3	11.0	10.0	x	10
Turkey Run	T2N R1E S.15	3.6	3.0	10.0	x	-
Webster Creek	T1N R1E S.32	3.0	2.5	10.0	x	-
Sulphur Br.	T1N R2E S.34	3.0	2.5	10.0	x	-
Horse Creek	T1N R3E S.35	6.0	5.0	10.0	x	-
Joe Br.	T1N R3E S.24	3.0	2.5	10.0	x	-
Lick Br.	T1N R4E S.28	3.6	3.0	10.0	x	-
Raccoon Creek	T1N R2E S.36	13.3	11.0	10.0	x	-
Martin Br.	T1N R2E S.11	3.6	3.0	10.0	x	-
South Creek	T1N R3E S.17	7.3	6.0	10.0	x	-
Old Camp Creek	T2N R3E S.33	3.6	3.0	10.0	x	-
Fulton Creek	T1N R3E S.10	7.3	6.0	10.0	x	-
Johns Br.	T2N R4E S.18	3.0	2.5	10.0	x	-
Jamison Creek	T2N R3E S.14	6.6	5.5	10.0	x	-
East Fork Kaskaskia	T3N R1E S.18	32.7	27.0	10.0	-	-
Dums Creek	T4N R3E S.27	23.0	19.0	10.0	x	-
Bee Br.	T3N R4E S.31	6.6	5.5	10.0	x	-
Bear Br.	T2N R4E S. 7	2.4	2.0	10.0	x	-
Lost Creek	T4N R4E S.17	12.1	10.0	10.0	x	-
Crooked Creek	T1N R1E S. 6	69.7	24.0	24.0	x	-
Skillet Fork	T1N R4E S.36	43.9	25.0	15.0	-	-
Mountain Br.	T3N R4E S. 6	3.0	2.5	10.0	x	-
Rocky Br.	T4N R4E S.27	2.4	2.0	10.0	x	-
Paintrock Creek	T1N R4E S.12	8.4	7.0	10.0	x	-
Brubaker Creek	T3N R3E S.21	7.9	6.5	10.0	x	-
Lone Grove Br.	T4N R3E S. 3	2.4	2.0	10.0	x	-
Schneider-Spring	T4N R3E S.12	4.9	4.0	10.0	x	-
Unnamed Creek	T4N R4E S.15	6.6	5.5	10.0	x	-
Unnamed Creek	T4N R4E S.13	3.6	3.0	10.0	x	-
Unnamed Creek	T3N R4E S.23	4.2	3.5	10.0	x	-
Unnamed Creek	T3N R4E S.24	3.6	3.0	10.0	x	-
Unnamed Creek	T3N R4E S. 2	3.0	2.5	10.0	x	-
Unnamed Creek	T3N R1E S.29	3.6	3.0	10.0	x	-
Unnamed Creek	T1N R1E S.34	3.6	3.0	10.0	x	-
Unnamed Creek	T4N R4E S. 9	3.6	3.0	10.0	x	-

SUMMARY OF INVENTORY DATA

Information gathered from past field work or other sources and of importance to this report has been summarized in order to form a more concise picture of the water resources in Marion County. All of the data presented may be found in Table, Figure, or Chart form associated with the appropriate interest.

POPULATION AND AREA

The population of Marion County has declined gradually from a high of approximately 47,989 during the early 1940's to 39,349 people as of the 1960 U. S. census (Figure 8). An oil boom during the 1940's and 1950's created a temporary increase in population which began to diminish in the late 1950's as oil work stabilized. The primary reason for the decline in county population is related to a change in farming practices. From the small general farms producing both crop and livestock products, more specialized operations producing in one area are now prevailing. Currently many small farmers are selling their farms; which are being incorporated into large specialized farms.

Between the U. S. census periods of 1950 and 1960 the county population decreased 5.6 percent while the population of the state increased 15.7 percent (Table 5). The population of Salem, the county seat, increased by 0.1 percent thus indicating the larger communities requiring a work force are absorbing some of the rural population drift (Table 6). By the year 1980 it is predicted that the declining population will stabilize at approximately 42,000 persons (Peterson, 1967). In Marion County there is an estimated 80.1 persons per square mile as compared to the state population of 180.2 persons per square mile.

The county comprises an area of 561 square miles (370,560 acres). This is somewhat larger than the average size of the surrounding counties (439 square miles average). Much of the county was originally in timber but now it occupies only a small portion of the county (534 acres) and is located primarily along the drainage systems.

The acres of water per capita is 0.07 acre; approximately 63 acres per square mile of land.

WATER RESOURCES

During 1962 an inventory of water was made by the Illinois Department of Conservation. The waters of Marion County were all located and categorized as to size. Since that time records have been maintained of additional impoundment construction through 1969 (Table 7). There are 1,534 lakes and ponds totaling 2,950 acres. There are 47 named and unnamed streams in the county; however, only one, Skillet Fork Creek, is considered significant for this discussion (Table 4). This stream (44 acres) plus the impoundment acreage adds up to a grand total of 2,994 acres in Marion County under water.

In Marion County there are 19 lakes and ponds classified as "State", "Public", or "Organizational" totaling 2,210 surface acres. More of the water areas of Marion County are farm ponds of less than 0.5 acre in size. Approximately 90 percent of the number of impounded water areas in Marion County are in this category (Table 7).

The most important lakes and streams for recreation include Forbes State

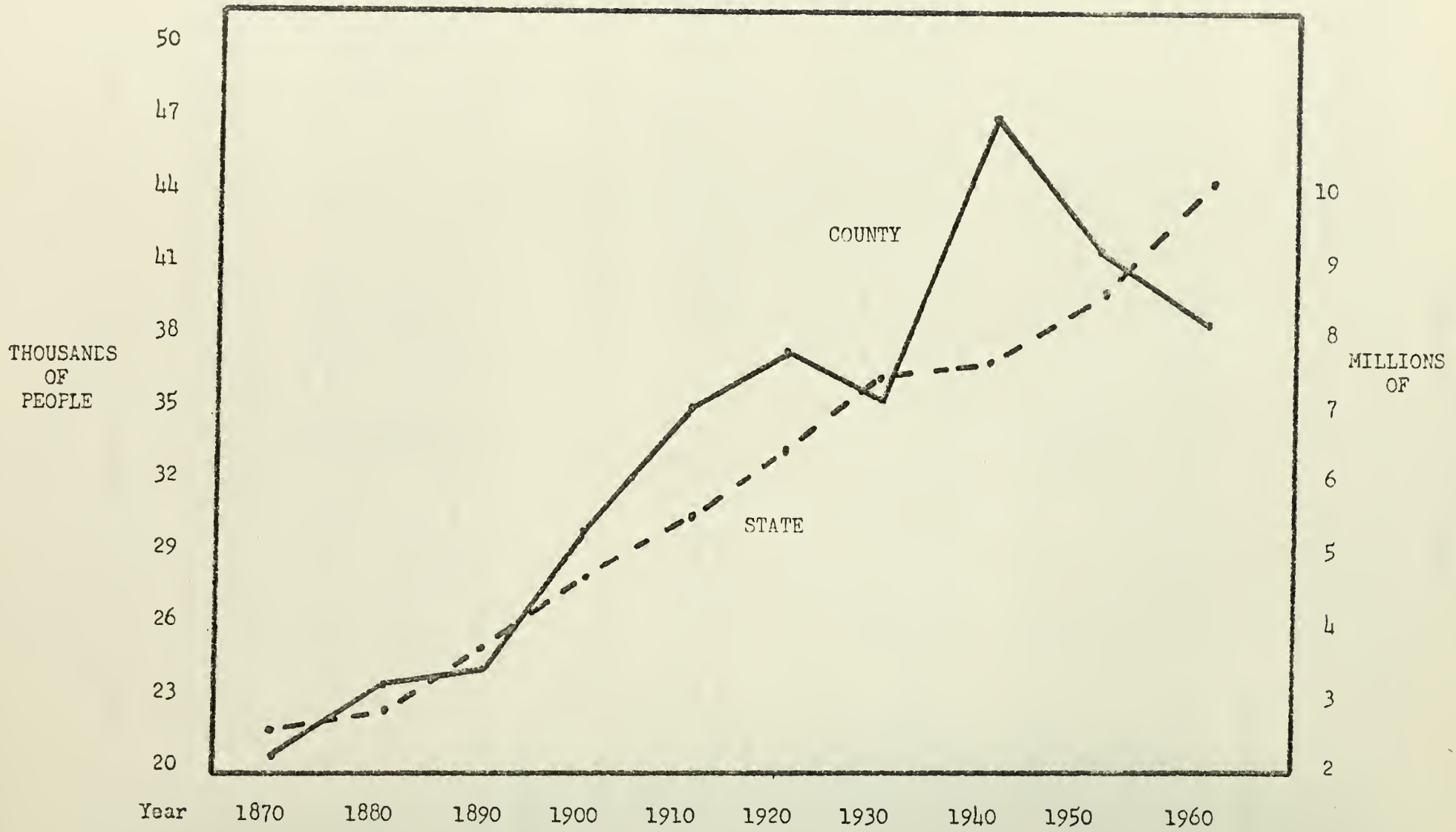


Figure 8 . POPULATION OF MARION COUNTY COMPARED TO THE STATE OF ILLINOIS

Source of Data: STATE OF ILLINOIS DEPARTMENT OF PUBLIC HEALTH; BUREAU OF STATISTICIS.

TABLE 5

POPULATION AND AREA COMPARISON OF MARION COUNTY TO THE STATE OF ILLINOIS

	Area Sq. Miles	Population (1960)	Percent Change (1950-1960)	Population Per Sq. Mile
Marion County	561	39,349	-5.6	70.1
State of Illinois	55,930	10,081,158	+15.7	180.2

TABLE 6

POPULATION AND PERCENT CHANGE BETWEEN 1950-1960 OF MARION COUNTY AND SALEM ITS LARGEST CITY

	Population (1950)	Population (1960)	Percent Change (1950-1960)
Marion County	41,700	39,349	-5.6
Salem	6,159	6,165	+0.1

Lake, Boy Scouts of America Lake, Centralia Foundation Park Pond, Community Beach Lake, Greenview Golf and Country Club Pond No. 1 and No. 2, Kinmundy Reservoir Lake, Lake Centralia, Lake Wood Inc., Moose Lake, Patoka Conservation Club 100 Lake, Patoka-Vernon City Reservoir, Raccoon Lake, Salem Country Club, Salem Reservoir and Salem Sportsmens Club Lake.

There are approximately 25 miles of the Skillet Fork Creek in the county. Other streams in the county provide limited fishing periodically; however, most of them are intermittent in the summer months.

LAKE MORPHOMETRY AND ORIGIN

The majority of the lakes and ponds of Marion County were constructed by placing an earthen fill across a valley. These impoundments vary in size from under 0.5 acre up to the largest impoundment of 970 acres (Raccoon Lake). Except for a small percentage of dug livestock watering ponds, the ponds range from 10 to 20 feet in maximum depth.

Most pond and lake construction is restricted to the hilly portion of the county where terrain permits more economical dam construction (Figure 9).

Most of the owners of farm ponds and lakes constructed in past years have received technical assistance from the U. S. Soil Conservation Service and financial assistance from the U. S. Agricultural Stabilization Conservation Service program.

WATER QUALITY

Most of the water areas in Marion County are fertile and highly productive. The degree of fertility is dependent on the type of watershed the impoundment is located in. Approximately 70 percent of the county is in cropland. Lakes and ponds receiving such drainage will accumulate added lime and phosphate fertilization. Lakes and ponds receiving additional enrichment from croplands and barnyards are higher in basic fertility which, in most cases, serves as a detriment (depending on the degree) to the receiving waters.

Fertility will cause a build up of aquatic plant life-filamentous algae (pond scum) sometimes completely covering ponds in the county. Enrichment of the water will increase the numbers of microscopic plants and animals (plankton) in the pond. Underwater rooted plants may become so dense as to hinder various uses of the area as well as provide excessive escape cover for small sunfish. The uncontrolled build up of aquatic plants in waters will lead to summer and winter fish kills in the shallower ponds. At periods during the summer various species of plankton become so abundant as to give the water a greenish cast. Many fish kills occur due to a plankton bloom and a sudden die-off. When the plankton, or any aquatic plant material, decomposes the oxidation of the dead material lowers dissolved oxygen concentrations below what fish require and they die of suffocation.

All of the deeper lakes and ponds of Marion County are eutrophic - they contain no oxygen in the colder depths. Thermal stratification occurs in such areas about July and continues through September. During midsummer the water stratifies into three distinct layers; (1) epilimnion or upper layer of water, (2) the thermocline, middle layer and (3) the hypolimnion or the lower layer of water. In some years the surface water temperatures may exceed 90 degrees during the summer months. Such conditions will not permit cold water fish (trout) survival in the county.

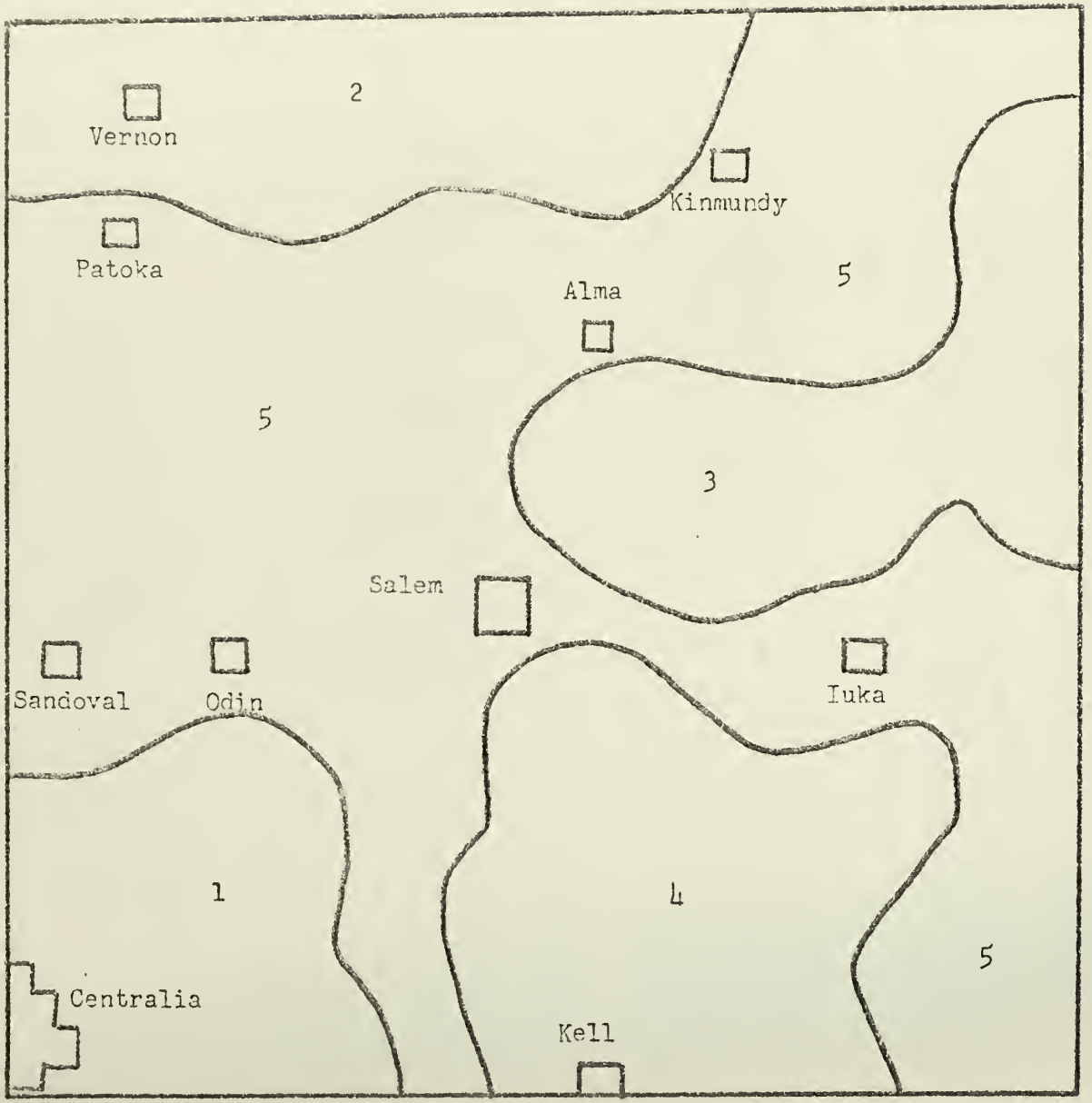
TABLE 7

MARION COUNTY

SURFACE WATER INVENTORY IMPOUNDMENTS

SIZE CATEGORIES		ARTIFICIAL
Acres	Number	Total Acreage
0.1 to 0.4	1,155	239.79
0.5 to 0.9	203	122.35
1.0 to 5.9	158	291.45
6.0 to 10.9	8	63.80
11.0 to 40.9	5	119.70
41.0 to 100.9	2	108.50
101.0 to 500.9	1	450.00
501.0 to Plus	2	1,555.00
TOTAL	1,534	2,950.59

Source of Data: ILLINOIS SURFACE WATER INVENTORY; SPECIAL FISHERIES REPORT NUMBER ONE; 1964 (plus revisions through 1969); ILLINOIS DEPARTMENT OF CONSERVATION.



MARION COUNTY

IMPOUNDMENT

DISTRIBUTION MAP

Area	Impoundment per square mile
1	6.4
2	3.1
3	3.5
4	4.6
5	3.6

Scale: 1 inch = 2 miles

Figure 9

In general the water areas, including streams, are alkaline with pH values occurring between 7.0 and 10.0

FISHERIES

The primary fishing areas of Marion County are the seven public lakes and ponds, the eleven organizational areas, the farm ponds, and the one state lake. Skillet Fork Creek and some of the smaller streams offer only a limited sport fishery to local fishermen and no commercial fishery.

On past occasions Raccoon Lake, which has a large carp population, has been opened to commercial fishing by contract. This lake is opened to commercial fishing more to reduce the poundage of rough fish species, carp and buffalo which displaces pounds of sport fishes, than it is to provide a commercial fishery. Generally after a minimal harvest of the commercial fishes, fishing is terminated due to the low fishing profit. Certainly no harm is done by a periodic harvest of the commercial poundage. Some benefit will be derived by removal of carp and buffalo; however, most probably the weight removed will be replaced by reproduction of the commercial fishes rather than by sport fishes.

Fishing in the public, state, organizational and private lakes and ponds is limited primarily to sport fishing for largemouth bass, bluegill, crappie and channel catfish (Figure 10). There are no commercial fishermen (defined as one who sells fish, turtles, or mussels) making their living solely from the waters of Marion County.

The most important fishing in Marion County is for the sport fish species previously mentioned. To improve and maintain the sport fishery of the county the Illinois Department of Conservation provides fingerling largemouth bass and bluegill to new or rehabilitated water areas.

There are no known rare species of fish inhabiting Marion County waters.

WETLANDS

There are no true wetlands or marshes left in Marion County. All such areas that formerly existed have been drained and are in agricultural production.

PUBLIC USE AND ACCESS

The public has access with few restrictions to the public waters of Marion County. Usually on the municipal water supply lakes there is an annual cost for using a boat. All of the public lakes which permit boating have launch ramps. In some cases where boats are trailered to the lake a daily launch fee is charged.

Forbes State Lake is open to public usage year around and public facilities are provided.

COTTAGE AND HOMESITE DEVELOPMENT

Raccoon Lake has about 200 cabins around the lake shoreline. Lake Centralia has approximately 80 cabins. Greenview Golf Association Lakes have both housing and apartment dwellings in the area. Royal Lakes also have cabins and home sites

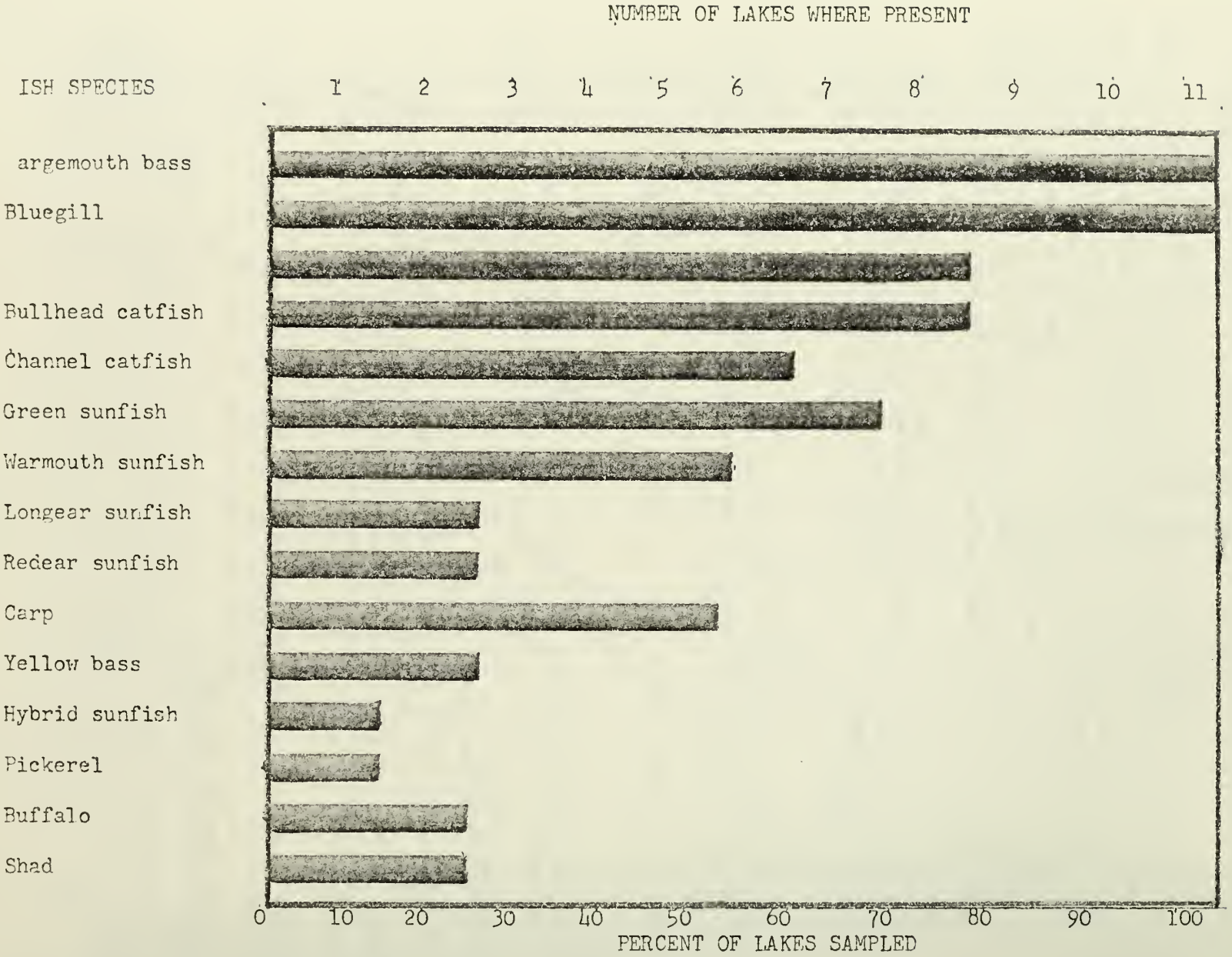


Figure 10 FREQUENCY OF OCCURRENCE OF FISHES IN MARION COUNTY LAKES. (11 lakes sampled)

Source of data: ILLINOIS DEPARTMENT OF CONSERVATION FILES

DEVELOPED IN THE AREA. THE PATOKA CONSERVATION CLUB 100 LAKE HAS SEVERAL CABIN OWNERS ALONG THE SHORELINE IN THE LOWER BASIN AREA.

MORE THOUGHT SHOULD BE GIVEN TO THE AESTHETIC APPEAL OF THE LAKE IN FUTURE PLANNING. CABINS ON A LOT TO LOT BASIS AROUND THE PERIMETER OF THE LAKE ADD LITTLE TO THE BEAUTY OF THE LAKE ENVIRONMENT. IN SOME AREAS THOUGHT IS NOW GIVEN TO SCREENING THE CABINS FROM THE LAKE VIEW.

PRESENT AND POTENTIAL USES OF SURFACE WATER

As the trend in numbers of people in Marion County reverses and begin to increase, the need for water based recreation also will grow. The following is a presentation of the present and the potential uses of the water and the related activities of fishing, boating, swimming, camping, hunting, trapping, and aesthetics.

FISHING

Fishing in Marion County is for sport. There is no commercial fishing at the present time except for an occasional contract to out of county commercial fishermen to reduce the rough fish poundage in Raccoon Lake. Some commercial fishing licenses for nets and baskets are sold in the county; however, persons using such equipment do so more in the sporting aspect of fishing.

Currently about 7 percent of the residents of Marion County purchase a hook and line fishing license. The annual sale is approximately 5,000 licenses. During 10 years of records (1953-1963), sales were consistent except in 1958 thru 1961 when they dropped to less than 3,665 licenses sold (Figure 11). During 1962 the sales began a gradual increase to their current status. This fluctuation in sales is consistent with a state phenomenon. This is explained in part by the migration of persons away from the rural areas toward the cities and the diversity of activities.

Two fee fishing areas exist in Marion County. Both are located near Iuka along Route 50.

POTENTIAL RESERVOIR SITES

There are several locations for smaller impoundments, up to 10 acres in size, that could be developed for public or private use in Marion County, but there are few areas that will impound over 100 surface acres of water (Figure 12). For this presentation, only impoundments of larger size will be discussed.

Davidson Creek: T3N, R1E, Section 21; Estimated Surface Acres = 750; Maximum Depth = 37 feet; Length of Shoreline = 12 miles.

This site is on a tributary of the West Fork of the Kaskaskia River and has a watershed of about 8 by 3.5 miles in size. The watershed has rolling uplands, rather abrupt slopes into the valleys, and a wide alluviated floodplain.

Deer Creek: T4N, R1E, Section 27; Estimated Surface Acres = 137; Maximum Depth = 20 feet; Length of Shoreline = 3 miles.

On a tributary to the North Fork of the Kaskaskia River this site is about 1 mile northeast of Patoka. The watershed is 3.5 miles long and 1.5 miles wide, and has nearly level uplands and long gradual slopes into a broad shallow valley.

Dums Creek: T3N, R4E, Section 32; Estimated Surface Acres = 1,270; Maximum Depth = 30 feet; Length of Shoreline = 20 miles.

A potential surface water reservoir site exists on Dums Creek below its confluence with Bee Branch about 2.5 miles north of Iuka. The drainage area above this point is mushroom shaped (about 5 by 8 miles). The watershed is situated in gently rolling uplands, and it has steep valley slopes and nearly

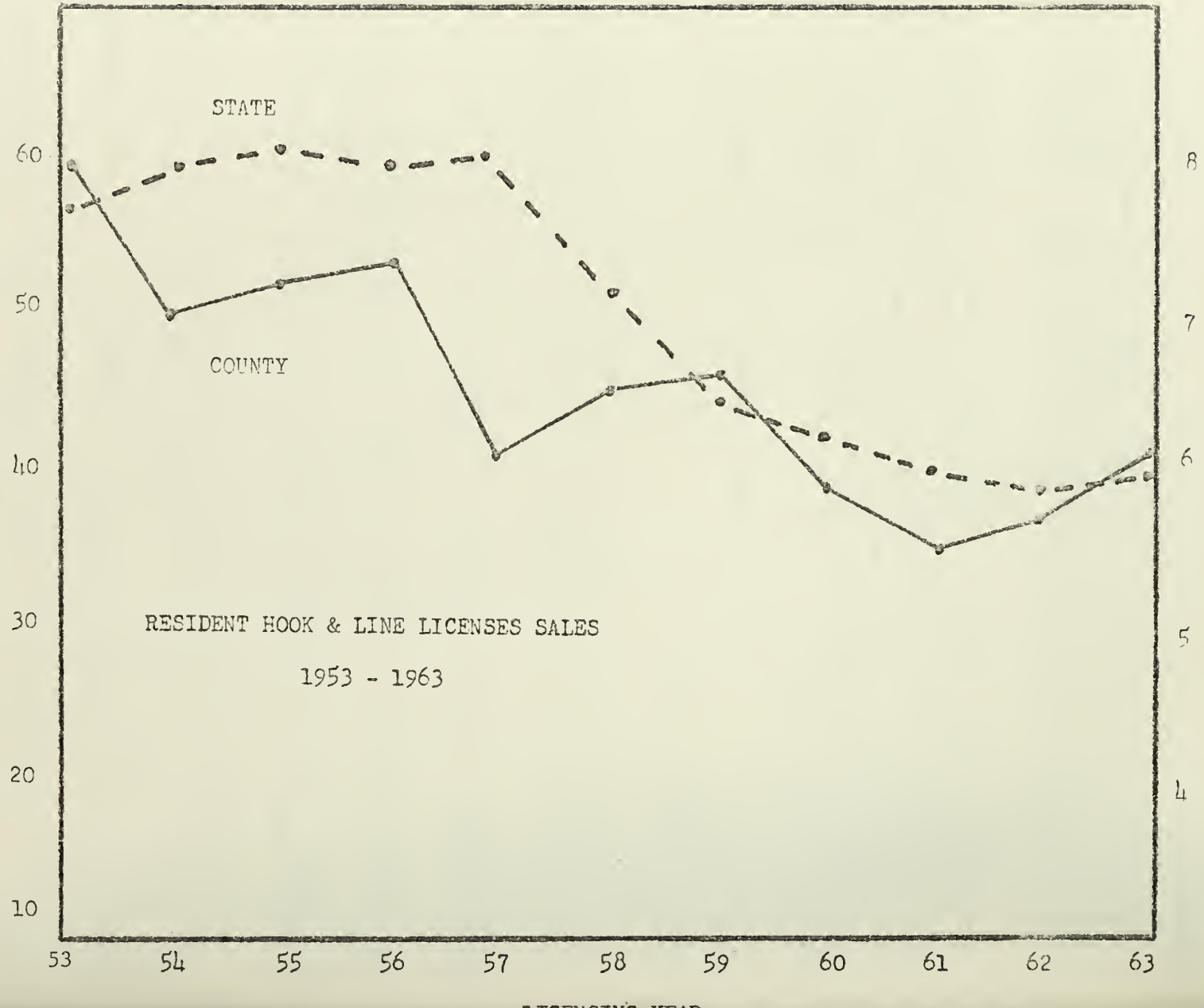
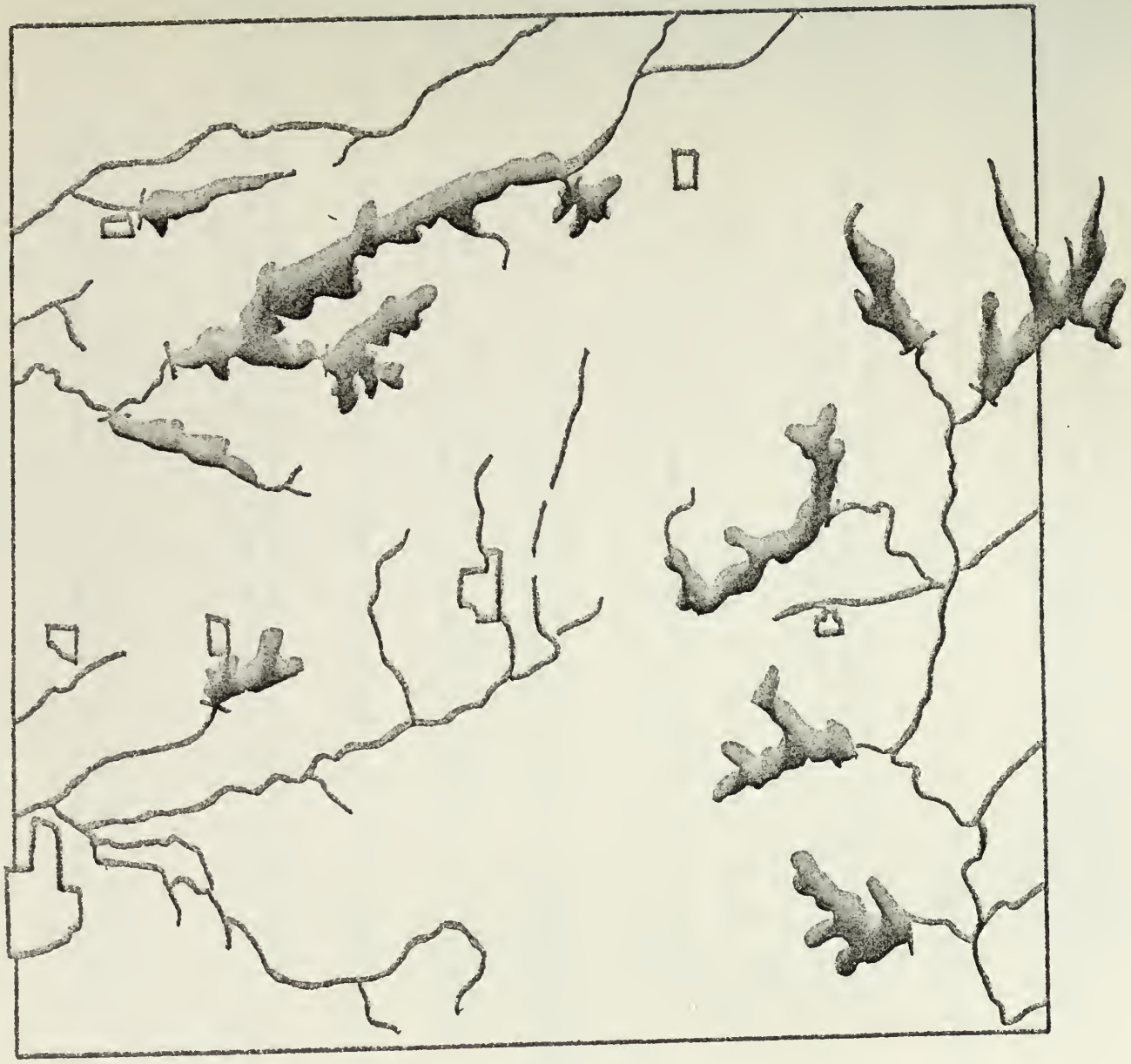

STATE
COUNTY
RESIDENT HOOK & LINE LICENSES SALES
1953 - 1963
HUNDREDS OF LICENSES
HUNDRED THOUSANDS OF LICENSES
LICENSING YEAR
60
50
40
30
20
10
8
7
6
5
4
53
54
55
56
57
58
59
60
61
62
63

Figure 12



POTENTIAL RESERVOIR SITES

SITE NUMBER

1. Davidson
2. Deer Creek
3. Dums Creek
4. East Fork Kaskaskia River
5. Fulton Creek
6. Jims Creek
7. Paintrock Creek
8. Tributary E. Fork Kaskaskia River
9. Tributary Skillet Fork
10. Turkey Creek

Source of Data: POTENTIAL WATER RESOURCES OF SOUTH-CENTRAL ILLINOIS.

LEVEL FLOODPLAINS.

East Fork Kaskaskia River: T3N, R1E, Section 10-11, Estimated Surface Acres = 3,200; Maximum Depth = 50 feet; Length of Shoreline = 40 miles.

A potential reservoir site exists 1 mile west and 5.5 miles north of Odin, on the East Fork of the Kaskaskia River. The watershed has gently sloping upland areas which break abruptly into the steep-sided valleys that have broad floodplains.

Fulton Creek: T3N, R4E, Section 32; Estimated Surface Acres = 960; Maximum Depth = 42 feet; Length of Shoreline = 14 miles.

A potential reservoir site exists on Fulton Creek, a tributary of Skillet Fork, located 3 miles south of Iuka. The watershed has dimensions of 5 by 3 miles, and it has hilly uplands dissected by numerous tributary streams.

Jim's Creek: T3N, R2E, Section 8; Estimated Surface Acres = 736; Maximum Depth = 44 feet; Length of Shoreline = 15 miles.

A potential reservoir site exists on Jim's Creek, a tributary of the Kaskaskia River, located 3 miles west and 5.5 miles north of Salem. The watershed is 4 by 3 miles, has gently sloping uplands, steep abrupt valley slopes and moderate floodplain development.

Paintrock Creek: T1N, R4E, Section 21; Estimated Surface Acres = 1,100; Maximum Depth = 48 feet; Length of Shoreline = 20 miles.

A potential reservoir site exists on Paintrock Creek, a tributary of Skillet Fork, located 7 miles south and 2 miles east of Iuka. Nearly all of the land in the reservoir area is under cultivation or in pasture.

Fulton Creek: T4N, R3E, Section 29; Estimated Surface Acres = 256; Maximum Depth = 40 feet; Length of Shoreline = 7 miles.

A potential reservoir site exists on Fulton Creek, a tributary of Skillet Fork, located 3 miles south of Iuka. The watershed has dimensions of 5 by 3 miles, and it has hilly uplands dissected by numerous tributary streams.

Sutton Creek: T3N, R4E, Section 23; Estimated Surface Acres = 1,300; Maximum Depth = 30 feet; Length of Shoreline = 21 miles.

Sutton Creek, a tributary of Skillet Fork, has a potential reservoir site located 6 miles northwest of Xenia. The watershed is pear-shaped, about 8 miles long and 6 miles across the top.

Turkey Creek: T2N, R1E, Section 23; Estimated Surface Acres = 520; Maximum Depth = 22 feet; Length of Shoreline = 11 miles.

A reservoir site exists on Turkey Creek about 2 miles south of Odin. The watershed is 5 miles long and 3 miles wide and has gently rolling uplands, long gradual slopes into broad valleys, and wide almost level floodplains.

BOATING

There are 1,595 boating licenses issued to Marion County boaters. Most of the larger power boating in the county is centered around Lake Centralia and Forbes

State Lake. Lake Centralia receives considerable pleasure boating pressure. In order to limit the number of power boaters using the lake it is restricted to persons living within 18 miles of the lake. Forbes State Lake was the site of one of the first experiments where an attempt was made to eliminate the problem of competition between fishermen and water sport usage. This difficult task has been successfully achieved by restricting certain areas of the lake at different times of the year. Prior to June 15 when fishing is good (the recreation season is young) outboard motors are restricted to a 10 horsepower limit. After June 15 to September 14, during the main recreational season, power boating is permitted in the wide space of the main basin. The upper necks and bays are restricted to no wake speeds thus providing a sanctuary for the fishermen. After September 15 when fishing becomes better and the recreation season is at an end, the lake is again restricted to 10 horsepower limit.

SWIMMING

There is one public swimming beach located on Lake Centralia. The beach is sand and there are picnic and concession facilities close at hand. A bath house is available to change clothes in while using the beach.

Few beaches are maintained by private water owners for their own use. Permission to swim in such areas is usually not granted because of the liability risk incurred by the owner. All of the small streams in the county are too small and silted to be attractive for swimming.

CAMPING

Camping facilities are available at several of the public lakes in Marion County. In some areas electricity and water are available. Forbes State Lake will eventually have available a large number of camper pads with electrical hookups and water available. Modernized toilet facilities and trailer sewage dump stations are a part of the rapidly expanding state camping area program.

Camping is permitted at Kinmundy Reservoir. No sites exist near Raccoon Lake. Salem Reservoir permits camping and some sites are available. Camping sites are available at two private camp grounds, Neff's Lake and Rose Lake.

HUNTING AND TRAPPING

Between 4,500 and 4,700 persons purchased an annual license to hunt small game in Marion County (Figure 13). Of primary interest to the hunters are rabbits, squirrels and quail. The rural and physical aspects of the county meet the habitat requirements of these game species. For rabbit and quail, the small farm units with grown up fence rows are most desirable. Both red and gray squirrels are found in the wooded stream bottoms.

Fox and coon hunting is also undertaken by a smaller group of country sportsmen.

The trapping of fur-bearing animals such as muskrat, mink, and fox are sought by the trapper to supplement other income, but primarily affording recreation.

In a recent survey it was noted that during the last 6 years there were from 40 to 60 sod waterways completed per county in a block of 11 southeastern Illinois counties, Marion County included. In many cases it is unfortunate that governmental agencies provide incentive payments to land owners for some practices that on the surface seem to be sound conservation. Often questions

WOULD BE RAISED AS TO THE DESIRABILITY OF SUCH PRACTICES WHEN ALL ASPECTS OF CONSERVATION ARE CONSIDERED - WILDLIFE BEING A PRIME CONSIDERATION.

AESTHETICS

MARION COUNTY IS AN AGRICULTURAL COUNTY ATTRACTIVE BY STANDARDS APPLICABLE TO A GENERAL FARMING LANDSCAPE. BEAUTY OF THE FARMSCAPE RUNS THE GAMUT FROM PICTURESQUE TO RAMSHACKLED. THE LANDSCAPE VARIES FROM SCENIC IN ONE AREA TO AN EYESORE OF RUSTED OIL FIELD EQUIPMENT AND SALTWATER DAMAGE IN ANOTHER. A RURAL ROAD MAY HAVE THE POTENTIAL OF BEING A SCENE FROM A PICTURE IN A BOOK - IF ONE OVERLOOKS THE REFUSE AND TRASH PEOPLE HAVE DEPOSITED AT BRIDGES AND IN DITCHES. WHAT IS SCENIC IN MARION COUNTY DEPENDS ON WHEN YOU LOOK AND WHERE YOU LOOK.

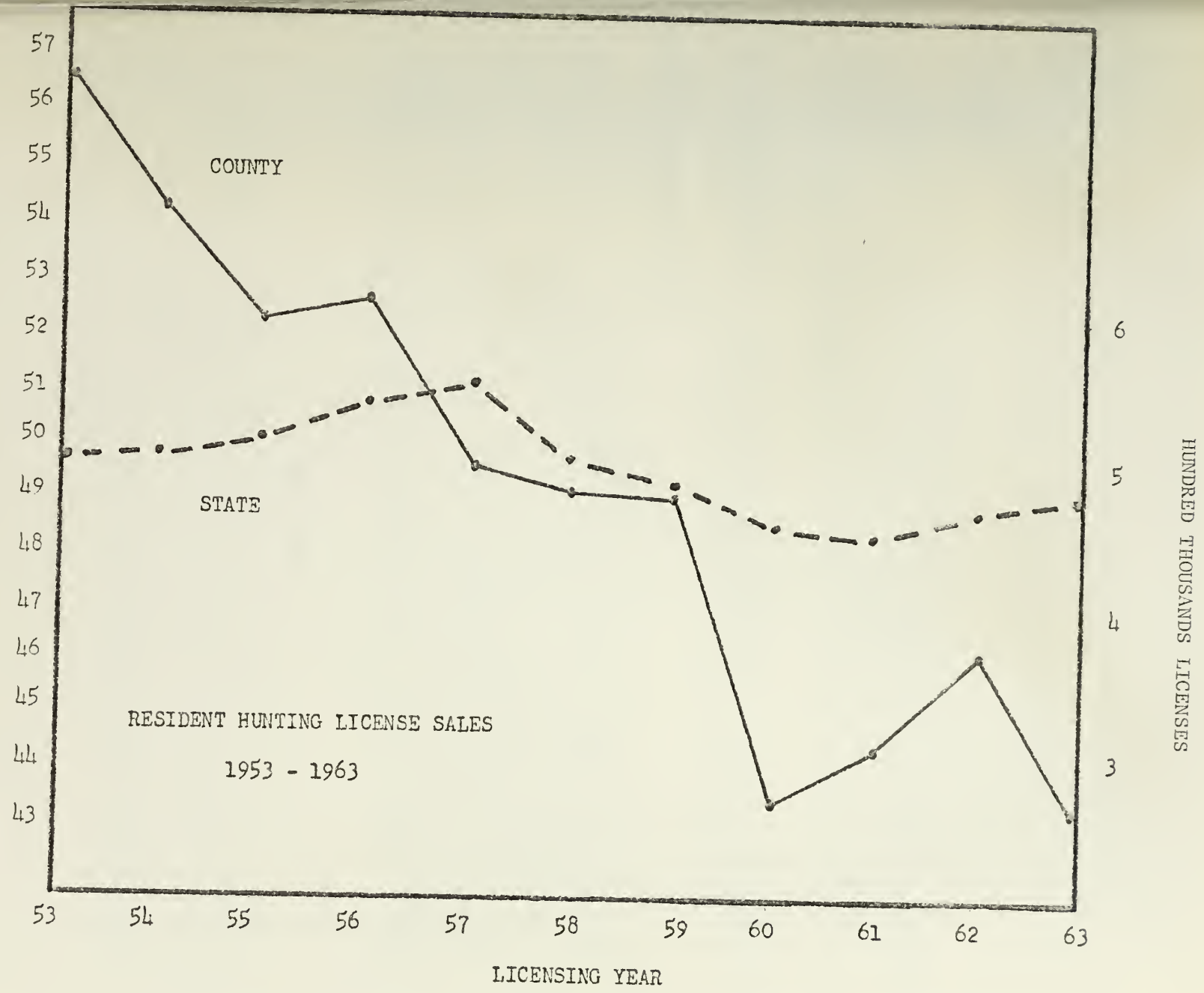


Figure 13. LICENSE SALES TRENDS IN MARION COUNTY AND THE STATE OF ILLINOIS.

Source of Data: ILLINOIS DEPARTMENT OF CONSERVATION FILES.

SURFACE WATER PROBLEMS

Problems wrought by man have diversely affected all of the streams of Marion County. No stream is untouched by siltation from cropland. Most of the streams have received oil and saltwater damage from the oil industry. The problem of domestic sewage has been increasing proportionately to the human population. New and sophisticated methods of dealing with all types of municipal and animal sewage must be researched and developed or it will unbalance our relationship with other environmental requirements.

POLLUTION

Oil pollution of the streams by oil sludge and saltwater has been damaging to the fish and wildlife of the area. The incidents of oil and salt pollution are decreasing because the field is old; as the wells become less economical to operate they are taken out of production. However, one may still find oil sludge along the stream banks that is harmful to wildlife and that destroys the aesthetic value of the stream.

Pollution caused fish kills in private ponds and lakes from barnyards or feedlot operations are common problems. An increasing problem is pollution by pesticides which are highly toxic to aquatic life and perhaps even man.

FLUCTUATING WATER LEVELS

The streams of Marion County are small and intermittent during the summer months. Occasional flooding creates problems for the farmers. It is in this area that the detrimental cycle of many flood control proposals arise. Farmers who have cropland flooded appeal to governmental agencies for assistance in the form of channel improvement. Locally the channel improvement does what it is supposed to do; it shortens the duration of the flooding by getting the water off the crops or cropland faster. This in turn creates problems in the lower watershed which in turn instigates more flood control proposals. Possibly an alternate approach, involving more desirable flood plain management practices other than channelization, would be more beneficial. We must insure the wise and proper use of our nonreplaceable and delicate lands.

THE FUTURE

Marion County will remain predominantly an agricultural county. As such, a farming community is busy producing during the recreational season and leisure time is non existent. Because Marion is the largest in population of the southeastern Illinois counties, due mainly to two large communities (Centralia and Salem), the outdoor resources are of prime importance. Marion is high in opportunities for water oriented recreational activities. With some expanding and development of current facilities, Marion will provide adequate opportunities for outdoor recreational pressures.

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GLOSSARY

ACRE FOOT - An area of one acre covered to a depth of one foot. One acre foot is 43,560 cubic feet or 325,851 gallons of water.

AESTHETICS - The overall scenic attraction of a lake setting; natural beauty of shores and waters, or any unusual natural phenomena; the appeal of its wildlife and aquatic plants.

ALGAE BLOOM - A bloom of algae (microscopic plants) may be so dense that it imparts a greenish, yellowish or brownish color to the water.

ALKALINITY - Ordinarily expressed as a pH above 7. Most water in the alkaline class has a range from pH 7.6 to 10.0. Alkalinity may be expressed as the amounts of carbonates, bicarbonates, and hydroxides present in the water.

ALLUVIUM - The sediments, or detrital matter, carried by inflowing streams and deposited on lake bottoms.

ANTICLINE - An arch of stratified rock in which layers bend downward in opposite directions from the crest.

AQUATIC PLANTS - Plants whose seeds germinate in the water or in the lake bottom soil; those that grow in water and are commonly grouped as floating, submersed and emersed.

AQUIFER - Any geological formation containing water, especially one which supplies the water for wells and springs.

ARTIFICIAL IMPOUNDMENT - Basins purposely excavated by man and filled with water by catchment from runoff, by pumping or by diversion of natural water bodies.

BASE FLOW - Flow in a stream when no runoff or precipitation is taking place.

BOD - The abbreviation for biochemical oxygen demand which is a measure of the amount of water soluble oxygen required by microscopic organisms to decompose a given amount of organic material in a specific amount of time.

COD - Abbreviation for chemical oxygen demand which is a measure of the chemically oxidizable organic matter in a given sample of water. The ratio between the BOD and COD is an indication of the relative proportion of biologically available organic matter in a given sample.

CARRYING CAPACITY - The maximum number (or weight) of organisms of a given species and quality which can survive in a given ecosystem through the least favorable environmental conditions that occur within a stated interval of time.

COMMERCIAL FISH - Fish that are caught by special tackle and sold.

CREEL CENSUS - Information obtained from anglers on their fishing success. A creel census can give information on fishing pressure, fishing quality, the total number and weight of fish being harvested, and the kind and size of fish being caught.

DERELICT LANDS - Those quarries, gravel pits and strip mines which have been abandoned or are depleted.

DO - An abbreviation for dissolved oxygen which is oxygen available in water for the survival of fish and other organisms.

DRAINAGE BASIN OR AREA - That part of a land area over which runoff water drains to a common point. See Watershed.

ECOLOGICAL - Pertaining to the interrelationship of living things and their environment.

ECOSYSTEM - A community of organisms, interacting with one another, plus the environment in which they live and with which they also interact; e.g. a pond, lake or stream.

EPHEMERAL - Lasting a very short time; short-lived; as applied to water areas - short-lived lakes and ponds.

EPILIMNION - In a thermally stratified lake, the turbulent layer of water that extends from the surface to the thermocline.

ESKER - A serpentine ridge of gravelly and sandy drift believed to have been formed by streams under or in glacial ice.

EUTROPHICATION - Enrichment of the water or lake soil. Increase in nutrients required for growth of organisms may come about by natural processes or rapid enrichment may take place due to some cause such as the introduction of sewage effluent. Eutrophic lakes are well provided with basic nutrients.

EVAPOTRANSPIRATION - The combined losses from a lake surface due to evaporation, sublimation, and transpiration from plant life.

FLATS - Water with slight to moderate current and with an unbroken surface but less depth than pools.

FLOODPLAIN - That part of a lake or stream basin lying between the shoreline and the shore cliff and subject to submergence during a high water stage.

FLUVIAL - Pertaining to streams and rivers.

FORAGE FISH - All small size fish used as food by larger fish.

GLACIAL DRIFT - Material of any sort deposited in one place by glacial action after having been moved from another location.

GLACIAL LAKE - A lake formed as a result of glacial action.

GLACIAL OUTWASH - Deposits made of materials produced by glaciers and carried, sorted, and deposited by water that originated mainly from the melting glacial ice. The deposits now exist as stratified beds of clay, sand, or gravel in the form of plains, valley trains, and deltas of old glacial lakes.

GLACIAL PLAINS - Glacial material that has been sorted or stratified by the meltwater of a glacier and is carried and deposited mainly as beds of clay, sand, and gravel to form plains.

GLACIAL TILL - A deposit of unstratified earth, sand, gravel, and boulders transported by glaciers.

GOB-PILE - The refuse area from a coal processing plant consisting of waste coal by-products, rock material and soil.

GRADIENT - The inclination from the horizontal of the lake bottom beginning at the shoreline. The slope of a stream over a given distance.

GRAVEL PIT - Lakes or ponds formed by the excavation of gravel.

GROUNDWATER TABLE - The upper limit of the part of the soil or underlying material wholly saturated with water.

HARDNESS (Water) - That quality in water which is imparted by the presence of dissolved salts; especially calcium sulfate or bicarbonate.

HOMOGENEOUS - Composed of parts all of the same kind.

HYPOLIMNION - In a thermally stratified lake, the layer of water below the thermocline and extending to the bottom of the lake. The water temperature is virtually uniform.

IMPOUNDMENT - A body of water ponded or held back by a dam, dike, floodgate, or any other barrier.

INTERMITTENT STREAM - A stream having water only part of the time.

KAME - A more or less rounded hill of sand and gravel associated with glacial deposits.

LACUSTRINE DEPOSIT - Materials deposited from lake water.

LAKE - A large body of water surrounded by land. The Illinois Department of Conservation classifies all impoundments six surface acres or larger as lakes.

LITTORAL ZONE - A narrow zone including both land and water immediately bordering the shoreline of a water area.

LOAM - A rich friable soil containing a relatively equal mixture of sand and silt and a somewhat smaller portion of clay.

LOESS - An unstratified deposit of yellowish-brown loam covering areas in North America, Europe, and Asia, now generally thought to be chiefly a wind-borne deposit.

MARSH - An area where water stands the year-round and is usually abounding in water weeds, cattail, bulrushes, and other emersed vegetation.

MGD - An abbreviation for million gallons per day.

MORAINE - A ridge, mound, or irregular mass of boulders, gravel, sand, and clay deposited by a glacier.

MORPHOMETRY - Measurements such as depth, length, width, volume, shoreline, and bottom gradients of a water area.

NATURAL LAKE - Any large impounded water area not formed by an act of man.

NURSERY STREAM - A TRIBUTARY STREAM USED BY SMALL FISH FOR PROTECTION AND FEEDING UNTIL THEY REACH MATURITY.

OXBOW LAKE - A LAKE OCCUPYING THE ABANDONED CHANNEL OF A LOOPING MEANDER OF A RIVER.

PARAMETER - A CONSTANT OR VARIABLE TERM IN A FUNCTION THAT DETERMINES THE SPECIFIC FORM OF THE FUNCTION BUT NOT ITS GENERAL NATURE.

PERMEABLE SOILS - SOILS CAPABLE OF ALLOWING THE PASSAGE OF WATER. A POROUS SOIL.

pH - THE SYMBOL FOR THE LOGARITHM OF THE RECIPROCAL OF HYDROGEN ION CONCENTRATION IN GRAM ATOMS PER LITER. A pH OF LESS THAN 7.0 IS ACID, A pH OF 7 NEUTRAL AND MORE THAN 7.0 IS ALKALINE. pH INDICATES THE ACIDITY OR ALKALINITY OF A MATERIAL.

PHOTOSYNTHESIS - THE PROCESS BY WHICH GREEN PLANTS USE SUNLIGHT, CARBON DIOXIDE, AND WATER TO PRODUCE CARBOHYDRATES AND OXYGEN.

PHYSIOGRAPHY - THE SCIENCE OF PHYSICAL GEOGRAPHY. A STUDY OF THE FEATURES AND NATURE OF THE EARTH'S SURFACE.

PLANKTON - A TERM FOR AN ASSEMBLAGE OF MICRO-ORGANISMS, BOTH PLANT AND ANIMAL, WHICH FLOAT, DRIFT, OR SWIM IN THE WATER AND IN THEIR MOVEMENTS ARE SUBJECT TO WAVE AND CURRENT ACTION.

POLLUTION - THE PRESENCE OF ANY FOREIGN SUBSTANCE IN WATER WHICH TENDS TO DEGRADE ITS QUALITY SO AS TO CONSTITUTE A HAZARD OR IMPAIR THE USEFULNESS OF THE WATER.

POND - A SMALL BODY OF WATER SURROUNDED BY LAND. THE ILLINOIS DEPARTMENT OF CONSERVATION CLASSIFIES ALL IMPOUNDMENTS LESS THAN SIX SURFACE ACRES AS PONDS.

POOLS - DEEPER PORTIONS OF A STREAM USUALLY WITH A SMOOTH SURFACE AND SLOW FLOW.

PPM - ABBREVIATION FOR PARTS PER MILLION IN TERMS OF UNITS OF WEIGHT. USED TO REPORT THE AVAILABILITY OR PRESENCE OF SALTS, NUTRIENTS, GASES AND TOXIC MATERIAL IN WATER.

PRIMARY PRODUCTIVITY - THE RATE AT WHICH ENERGY IS STORED BY PHOTOSYNTHETIC AND CHEMO-SYNTHETIC ACTIVITY OF PRODUCER ORGANISMS (GREEN PLANTS) IN THE FORM OF ORGANIC SUBSTANCES WHICH CAN BE USED AS FOOD MATERIALS.

REHABILITATION - TO RESTORE TO A GOOD CONDITION. IN THE CASE OF UNDESIRABLE FISH POPULATIONS, THE POPULATION IS REMOVED IN WHOLE OR PART IN ORDER TO RESTORE IT TO A GOOD CONDITION.

RELIEF - A CONTOUR VARIATION OF THE LAND SURFACE IN RELATION TO THE SURROUNDING LAND.

RIFFLES - SHALLOW BUT RAPID CURRENT OVER GRAVEL OR RUBBLE.

ROTENONE - A PLANT ALKALOID AND IS THE ACTIVE INGREDIENT IN DERRIS POWDER, CUBE, BARBASCO, AKAR TUBA, AND ALSO IN THE CURRENTLY AVAILABLE FISH TOXICANTS FOR USE IN KILLING FISH.

RUNS - MODERATE TO RAPID CURRENT FLOWING IN A DEEPER NARROWER CHANNEL THAN A RIFFLE BUT THE CURRENT IS NOT AS TURBULENT AS IN A RAPID.

SECCHI DISC - A CIRCULAR PLATE 20 CENTIMETERS IN DIAMETER THE UPPER SURFACE OF WHICH IS DIVIDED INTO FOUR EQUAL QUADRANTS AND SO POINTED THAT TWO QUADRANTS DIRECTLY OPPOSITE EACH OTHER ARE BLACK AND THE INTERVENING ONES WHITE. THE INSTRUMENT IS USED TO MEASURE LIGHT PENETRATION IN WATER.

SILTATION - THE FILLING OF WATER AREAS BY SEDIMENTS CARRIED IN BY INFLOWING SURFACE WATER.

SPORT FISH - ANY FISH THAT IS SOUGHT AFTER BY ANGLERS USING A POLE AND LINE.

STRATIGRAPHY - A BRANCH OF GEOLOGY DEALING WITH THE CLASSIFICATION, NOMENCLATURE, CORRELATION, AND INTERPRETATION OF STRATIFIED ROCKS.

STRIPMINE LAKE OR POND - WATER IMPOUNDMENTS RESULTING FROM COAL MINING OPERATIONS NEAR THE SURFACE OF THE GROUND.

SUBSTRATE - THE BOTTOM DEPOSITS OF A LAKE OR STREAM ON WHICH ORGANISMS MAY GROW.

SYNCLINE - SLOPING DOWNWARD IN OPPOSITE DIRECTIONS SO AS TO MEET IN A COMMON POINT OR LINE. A DOWNWARD FOLD OF ROCK STRATA.

TAILWATER - THE PORTION OF A STREAM IMMEDIATELY BELOW A DAM.

TERMINAL MORAINE - A RIDGE OF GLACIAL TILL MARKING THE FARTHEST ADVANCE OF A PARTICULAR GLACIER.

THERMAL STRATIFICATION - DIFFERENCES IN WATER TEMPERATURE FROM THE SURFACE TO THE BOTTOM IN WHICH DISTINCT LAYERS CAUSED BY TEMPERATURE GRADIENTS AND RESULTING CHANGES IN WATER DENSITY.

THERMOCLINE - THE STRATUM OF WATER IN WHICH THERE IS A RAPID RATE OF DECREASE IN TEMPERATURE WITH DEPTH; A MINIMUM OF ONE DEGREE CENTIGRADE PER METER OF DEPTH. THE THERMOCLINE IS LOCATED IMMEDIATELY BELOW THE EPILIMNION.

TOPOGRAPHY - THE DETAILED MAPPING OR CHARTING OF THE FEATURES OF A RELATIVELY SMALL AREA, DISTRICT, OR LOCALITY. THE RELIEF FEATURES OR SURFACE CONFIGURATION OF AN AREA.

TURBIDITY - THE DEGREE OF OPAQUENESS OF WATER DUE TO THE AMOUNT OF FINE MATTER IN SUSPENSION.

WATERSHED - THE WHOLE SURFACE DRAINAGE AREA THAT CONTRIBUTES WATER TO A STREAM OR IMPOUNDMENT.

WETLANDS - LAND FEATURES THAT ARE PERMANENTLY WET OR INTERMITTENTLY WATER COVERED SUCH AS SWAMPS, MARSHES, BOGS, MUSKEGS, POTHOLES, SWALES, GLADES, SLASHES, AND OVERFLOW LAND OF RIVER VALLEYS.

WINTERKILL - PARTIAL OR COMPLETE LOSS OF FISH AND ANIMAL LIFE OF A WATER AREA DUE TO THE FORMATION OF A COMPLETE ICE COVER CAUSING OXYGEN DEPLETION FROM WATER STAGNATION.